

**MADE IN USSR**

# **THE AUTHENTIC GUIDE TO RUSSIAN AND SOVIET CAMERAS**

**SECOND EDITION**



**JEAN LOUP PRINCELLE**

AN ORIGINAL



LE REVE EDITION

**MADE IN USSR**  
**THE AUTHENTIC GUIDE TO RUSSIAN AND SOVIET CAMERAS**

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English Translation by Charles BARRINGER

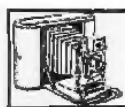
*"With a little help from my friends", Jim McKEOWN, Dieter SCHEIBA and Milos MLADEK*

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**"СДЕЛАНО В СССР"**

**РЕАЛЬНЫЙ СПРАВОЧНИК ПО РОССИЙСКИМ И СОВЕТСКИМ КАМЕРАМ**



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# **THE AUTHENTIC GUIDE TO RUSSIAN AND SOVIET CAMERAS**

**ENLARGED SECOND EDITION**

*Text and Photography*

**JEAN LOUP PRINCELLE**

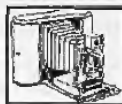
*Guide services and Russian translation*

**VALIA OUVRIER**

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LE REVE EDITION

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**THE AUTHENTIC GUIDE TO RUSSIAN AND SOVIET CAMERAS**

*This book is dedicated to Chantal, Alice, Louise,  
to Valia, my "Mentor",  
to Igor, Michaël, Nicolai, Sacha, "San Sanytch", Victor,  
to Charles, Dieter, Jacques, Jim, Milos, Patrice, Peter,  
to Irina  
and to  
Aleksandr Andreïevitch SYROV,  
which has opened to us "the way to Russian and Soviet Cameras" .*

ЭТО ВТОРОЕ ИЗДАНИЕ ТАК ЖЕ КАК И ПЕРВОЕ ПОСВЯЩАЕТСЯ  
ШАНТАЛЮ, АЛИСЕ И ЛУИЗЕ,  
МОЕМУ УЧИТЕЛЮ ВАЛЕ,  
МОИМ РУССКИМ ДРУЗЬЯМ, ПОМОГШИМ МНЕ НЕ ЦАДЯ СИЛ  
ИГОРЮ, МИХАИЛУ, НИКОЛАЮ, САШЕ, "САНУ САНЫЧУ", ВИКТОРУ,  
МОИМ "СОУЧАСТНИКАМ"  
ДИТЕР, ЖАК, ДЖИМ, МИЛОШ, ПАТРИС, ПЕТЕР,  
ИРИНЕ,  
И  
АЛЕКСЕЮ АНДРЕЕВИЧУ СЫРОВУ,  
КОТОРЫЙ НАМ ОТКРЫЛ "ПУТЬ ФОТОАППАРАТОВ"  
РУССКИХ И СОВЕТСКИХ.

**"СДЕЛАНО В СССР"**

**РЕАЛЬНЫЙ СПРАВОЧНИК ПО РОССИЙСКИМ И СОВЕТСКИМ КАМЕРАМ**

# Introduction.

Why is a book about cameras made in what is commonly called, in these last days of the 20th century, the ex-USSR, being written by a Frenchman? Good question, indeed.

Maybe the reason was a cute little Zorki, spotted in the window of a camera shop in Stuttgart, which swept me off my feet.

Or maybe also a certain mistrust, generated by several collector friends of mine for these "eastern zone" cameras, led me to scratch that side of the Earth, since I was already passionate about 35mm cameras from the pre-Leica era. But certainly more by curiosity than because of a contrarian spirit.

And finally, having started to collect the cameras which I used in my job as a photographer, I took a shine, initially as a game, for cameras which I found rather ugly. Heaven knows there are lots of them, coming from all over, but especially from the Russians, it must be said.

So there are a few answers to the question. What is certain is that it all started in the '80's, a time rich in important political events in the USSR, when I started the delicate but tenacious search for information, documents, and cameras in order to illustrate the Soviet part of the work then being prepared by Mr. Patrice H. Pont, 300 LEICA COPIES (Editions Fotosaga.)

In addition, I made several trips to the East in the company of my friend Valia Ouvrier, a professor of Russian, passionate historian, photographer, and my mentor for this project. With considerable patience, from meeting to meeting, from promise to promise, from interview to interview, we gathered a considerable quantity of documents and interviews about the birth and life of these manufactured objects about which we are so passionate.

In this endeavor we benefited greatly from the exceptional assistance of many friends in Belorussia, Russia, and Ukraine, all of whom are totally devoted to the goal of researching as thoroughly as possible that part of the story - their history.

After the first edition of "Made in the USSR" many fans of Soviet and Russian cameras from every corner of the globe offered me photos, documents, anecdotes, experiences and impressions. And several dealers "from the East" came to me, often completely spontaneously, to bring their contributions to the work by pointing out a rare version of a camera, or a new discovery.

Thus the second edition of *Made in the USSR, The Authentic Guide to Russian and Soviet Cameras* is my attempt to incorporate all these investigations, all these generous and friendly new inputs into the history of Soviet cameras.

However, this work of only 300 pages cannot and DOES NOT EVEN TRY TO PRESENT THE TOTALITY OF THE PRODUCTION OF THE "OPTICO-MECHANICAL" SECTOR of a country as huge and complex as the one which was the Union of Soviet Socialist Republics.

So I ask your indulgence for the errors, the omissions, and anything that might have been forgotten in this work. Any and all further information is, and always will be, welcome for the Third edition (why not??) of *Made in the USSR, The Authentic Guide to Russian and Soviet Cameras*.

But it is important to remember that before the fall of the Berlin Wall the USSR was still a country which was "opaque" to the outside world, riven by a paranoia of espionage, and that in that country any research into industrial production, even of the past, especially by a westerner, could be very, very, very poorly interpreted.

The astonishment of the people I met and questioned was proportional to the depth of my questions.

Until then, the total absence of any realistic information about the photographic industry (or often, disinformation and "massaged" data) generated a fertile breeding ground for "legends" and "counter-truths." Thus, with few accurate guidelines until now, very few western collectors wanted to get deeply interested in the products of this country.

With perestroika, the opening of the ex-communist countries and the fall of the Berlin Wall radically transformed the scene in this collecting department.

Hordes of dealers from the neighboring countries, well introduced in the circuits of Soviet "exchanges" literally flooded western markets with rare and hitherto unknown cameras, destabilizing a market which was already not very solid.

After 300 LEICA COPIES one of the first works presenting in detail some of the Russian cameras to the west, better knowledge of Soviet camera production contributed to the quite justified sensational rise in prices of cameras such as the FAG, the VOOMP, and the TSVVS. But the pillage of the attics and workshops of St. Petersburg, Moscow and Kiev now seems to be over.

Let us hope that with this new edition of *Made in the USSR*, the further increase in knowledge about the types and models of cameras, and details of their production, will cause the "iconomechanophiles" of this world (all 87 of them) to become even more passionate about these fascinating cameras "from the East."

And in the end, maybe the shared recognition by folks from both sides of what used to be the Iron Curtain will generate, if not friendship, at least esteem and respect.



# About this new edition...

*A writer once said "In the life of man, the past is that instant which is no longer ours, which is not yet History, and for which the witnesses are dead." This is true and it is frightening to discover the speed with which memory starts to desert us, especially in our sector of research.*

The first edition of this book generated substantial response, which included some very constructive criticism and friendly statements of satisfaction, often accompanied by pictures, and numerous great offers of assistance, always welcome.

This correspondence convinced me and my publisher, HOVE FOTO BOOKS, that a second edition, increased and enriched by all the new information coming from our correspondents, was necessary. Let me acknowledge here some new arrivals in the already long list of friends without whom this book would not exist: Milos and Peter, Akira, Alain, Thorsten, Mark and Ryszard, and finally, a beautiful (this is a Frenchman speaking, don't forget) Russian historian from Astrakhan, Irina E. Frolova.

Irina is the author of a fascinating essay entitled *"The world of Russian objects which are disappearing, of names which are ceasing to exist...."* and especially the world of cameras, their creators, designers, and builders.

One part of this essay deals with the life and tragic fate of a very great Russian conceptual engineer named A. C. Ionissiani. (cf the Reporter, pp 46-47.)

Most of the time, men are hidden behind the walls of the factories in which they work. The names of the engineers, calculators and project managers reappear only by dint of the tenacious tendency of historians to give names to the people and things involved. This serves to substantiate their theses and tomes, but also serves quite often as a sort of homage.

But if it is already delicate to unearth the names of the men and women hidden by the hierarchical system in the west, said to be "free", you can imagine how difficult and complex it was to undertake the slightest research in paranoid Soviet society.

Irina, as a historian, tries with dogged determination and great success, to help emerge from the shadows not only these armies of engineers, designers, and optical calculators, but also the supervisors, assemblers, and workmen.

Let's read a piece of her work here:

*"More than anything else what saddens the reader of Soviet and post Soviet literature on photography is the almost complete absence of names of savants, popularizers, creators, researchers - in a word the creators of photographic material of all kinds. Both the idea and the practice were taught during the Soviet period, that such equipment was the product of a collective and planned creation process, and that the larger the collectivity, the better and quicker it created! (!!!)*

*And it was not allowed to think otherwise! This was, of course, the same sort of ineptitude as the thinking behind the idea that "nine Soviet mothers can bring forth a baby in one month" but understanding this does not make the research of the historian any easier.*

*Our predecessor, Alexander Andreïevitch Syrov, author of the book "The Path of the Photographic Camera, of the History of the Manufacture of Soviet Cameras" declared at the time (1950's) in a letter addressed to David Z. Bunimovitch (44), "This is an almost unrealizable task in our country of P. O. Boxes (of factories working for the Ministry of Defense having no address other than a P. O. Box), of Departments "under Regimen" (under military control), of draconian rules, of withdrawal from circulation and destruction of priceless source documents for our history..."*

*Equally pessimistic on this topic is the contemporary historian, Yuri F. Ryshov, author of a monograph entitled "A brief History of the Soviet Camera" published in 1993 at Rostov on the Don, edited by Boris I. Bykov, former editor of the "Commercial Bulletin of Photography," who died in 1993.*

Then, in Irina's original text, a paragraph full of praise is destined to appear in the first edition of *Made in USSR, The Authentic Guide to Russian and Soviet Cameras* (always a pleasure) in which she dares to hope that this book might appear one day in Russian....

Why not? The honors would then devolve on all the collaborators present on the acknowledgments page, and on the considerable quantity of work accumulated by all of us.

*Author's note: This treatise helped this poor little Westerner discover, among other things, how much our literature, our great and less great history, our great men and our museums are studied, analyzed, almost dissected by our Russian confreres and how little we know, sometimes how little we want to know, about this great and talented people.*

*With this new edition, I hope I will have succeeded in orienting the curiosity of "iconomechanophile" collectors, who are generally sensitive to History (at least I hope so), toward a world hitherto supremely ignored.*

# Made in USSR...



Cover of "Sovetskoe Foto", issue #2/1929:  
Vladimir Ilitch Ulinov, alias Lenin.



Cover of "Sovetskoye Foto", January, 1939:  
special edition for the 100th anniversary of  
Photography.

The Russians are reputed to be first class mathematicians and excellent optical calculators.

But it is due to a strict political will, beginning in the thirties, that the USSR became one of the greatest world producers of imaging devices. This came about using "devoted" workers, taking advantage of a total absence of complexes in the field of copying, even improving on foreign models, and also thanks to an abundance of raw materials and rare earth compounds, yielding some of the best optical sands on earth. Recognized as technicians, the Soviets are also authentically great photographers, and Russian Images are well represented in the history of photography. (04-b)

We should note in passing the following: A. DENIER, painter and representative of the school of Russian daguerreotypists in Berlin in 1865; A. F. GREKOV (cf p. 16); I. BARSHTCHEVSKI, specialist in architectural photography; I. BOLDYREV, inventor of a precise shutter and renowned photographer of scenes of the daily life of the Cossacks of the Don; KARCHINE, who received two gold medals at the international exposition of photography (Edinburgh, 1876) for his group portraits; M. DMITRIEV, itinerant photographer specializing in genre scenes who created a huge body of work of ethnographic scenes, and whose post card views of ethnic types of Imperial Russia were exhibited world-wide; NAPPELBAUM (1869 - 1958) who made portraits of the greatest Soviet poets, writers and musicians; ANDREYIV, a pictorialist; SVI-CHOV-PAOLA (1874 - 1964), pictorialist and portraitist; D. A. NIKITIN, who covered the Russo-Turkish War of 1877 (04-b); RODCHENKO (1891 - 1956) the theoretician of constructivism, director of an art magazine, and painter and photographer; SCHATKET (1898 - 1959) and ALPERT (1899 - 1980), sociological and political reporters and war correspondents; and finally, Dmitri BALTERMANS, born in 1912, one of the greatest war correspondents of the 20th century, and probably the equal of Robert Capa.

As for contemporary figures, we have Galina LOUKIANOVA, specializing in peasant nostalgia (in the current of Russian peasant literature); A. SLIOUSSARIEV, for his "inert" photographs and a witness of contemporary life; LEONTIEV and MUKHIN for their street portraits, and let us not forget the Kazakh NIAZOV, Lithuanians R. PAKAUSKAS and A. SUTKUS, and the Latvian SPURIS. One of the specialties of the Lithuanian school was social portraits in the streets and markets with a 20 mm wide angle...

The success of popular photography in the USSR was a basic reason for the production of cameras. In schools, factories, collective farms, in hundreds of amateur clubs, often "animated by some of photography's greats," gathered lovers of great art for contests and showings. As a result, photography will become the witness of the collective life of the Soviets, with their portraits for awards presentations, abundantly illustrated propaganda magazines covering the "progress" of the 5 year plans, and so forth.



# ...instructions for use.

Since photography was not born in this country with the October Revolution, it is indispensable to introduce in the first chapter some of the precursors of the 19th century.

THEN, IN THE "DESIGNATED" SECTION the author proposes to describe as generously as possible the production of the following firms, chronologically by order of the dates the firms were founded.

- GOZ, GOI, VOOMP, GOMZ and then LOMO in Leningrad;
- EFTE - ARFO in Moscow;
- FED in Kharkov;
- Zavod Geodesiya in Moscow;
- KMZ in Krasnogorsk, a Moscow suburb;
- Subminiatures, "military" cameras and other special cameras, about which the expanded chapter in this edition follows the KMZ chapter for reasons which will be understood;
- Zavod Arsenal in Kiev;
- MMZ, BelOMO in Minsk;
- some "satellite" factories in Kazan, Lutkarino, Rostov, Valdaï, Vologda, and Zagorsk.

Some cameras which are not the production of the firms whose pages they occupy, and others whose place of origin was impossible to discover, or those produced in ateliers unknown in the West, are described in a double border, generally in proximity to a camera with similar characteristics.

Finally, amateur movie cameras are covered in a NEW CHAPTER in this edition. They are organized like the cameras from the same factories:

- GOMZ - LOMO in Leningrad;
- Kazan in Kazan;
- KMZ in Moscow;
- Arsenal in Kiev.

In closing, several pages are reserved for a quick description of the world of "accessories:" enlargers, light meters, projectors, and so forth.

WITHIN ANY GIVEN CHAPTER, the order in which a family of cameras is CHRONOLOGICAL, based on the introduction of the first model. *for example*, Zorki 1 (1947) to Zorki 12 (1968); Kiev (1947) to Kiev 4m (1977). The only exception is the Zenit, comprising three distinct families for which a special presentation has been adopted (pp. 148 - 165.)

In the "COMPANIES" CHAPTER the organization follows the photographic formats:

- first, 35mm, of the Soviet photo industry (except for GOMZ);
- then medium format, 6x6, 6x9, large formats;
- then miniature and special formats, with some special features.

Each image of a camera is labeled with a reference number to facilitate its identification, *for example*:

F130 = FED, image # 130.

If the reference is not underlined, the camera is not illustrated, but it is referenced to facilitate its identification.

VARIATIONS of a model are listed in sequence, *for example* F131 is a *variation* of F130.

A single border underscores a special camera within its family. Within each chapter, tables, sidebars, and family trees will attempt to help you quickly locate a given camera or family of cameras within their historical context, or simply its place within that factory's production.

The logos, the graphic symbols identifying each factory (and unfortunately missing in the first edition of this book), are systematically represented in the summary pages preceding each chapter.

Certain abbreviations should be understood by the reader as well: SLR = Single Lens Reflex; TLR = Twin Lens Reflex; ∞ = infinity; s. = second (in a discussion of shutter speeds.) Lens specifications are presented in the European way; "2/50mm" should be understood as a 50mm f:2 lens. Standard abbreviations for metric quantities are used. "Full-frame 35mm" = 24x36mm image dimensions on 35mm perforated film. X Sync. = maximum speed of electronic flash synchronization; etc.

In the margins of the left hand pages, "REFERENCES" will help the reader make a rapid and functional consultation of the text. The author voluntarily limits the present volume to coverage of the production of the USSR and only the USSR. After the fall of the Berlin wall in November 1989 the "associate" and "autonomous" republics were more or less liberated from the Soviet hegemony. We will need 20 or more years to be able to analyze present production.

No prices, or other values will be found in the present work. Only the production figures may give an indication of the rarity of any given camera or model. The buying and selling prices of a collector camera are governed by rules unknown to the author. McKeown's "Price Guide to Cameras," the collector's Bible, which is re-edited every two years, is and remains the best guide for your possible transactions.

However, some alert collectors (perhaps benefiting from experience acquired in the present work) will be able to discern the near future's rare cameras: "aborted" series, special models introduced for industrial fairs, prototypes and pre-production cameras; models sometimes delivered directly from the back doors of "Russian" factories to the greedy hands of Western collectors through the efforts of unscrupulous dealers and car-pelbaggers of the end of the century. The future cup will "run-neth over."

In closing, the author hopes that thanks to the present work, you will share the joys he had in meeting all these wonderful friends of History, the history of photography, and the history of cameras in the ... "ex-USSR." And he hopes you will have as much satisfaction delving into "Made in USSR" as he has had in creating it.

Châtillon, Oudreville sur Essonne, France.

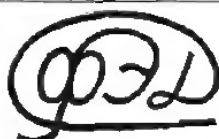
August 1997 to May 2002

# Logos of Soviet enterprises from 1932 to 1990



**ЭФТЭ**

*"Апрель"*



**ФАГ**



**МИНИАТЮРНЫЕ, ВОЕННЫЕ  
И ДРУГИЕ ОСОБЫЕ КАМЕРЫ**





**The Little Stories, and the Great History, of Russia  
Photography in Russia in the 19th century,  
The 20th century and photography in the USSR.**

**GOI - GOZ - VOOMP - GOMZ - LOMO**

**EFTE - ARFO**

**FED**

**ZAVOD GEODEZIYA**

**KMZ**

**Subminiatures, military cameras  
and other quite special  
cameras**

**ZAVOD ARSENAL**

**MMZ - BelOMO**

**VOMZ - LZOS - KOMZ - ZOMZ - ROMZ**

**Amateur movie cameras GOMZ - LOMO - KOMZ - KMZ - Arsenal**

**Light Meters, Projectors, Enlargers and  
Various Accessories**

**Notes, Index and Bibliography**

# The Little Stories, and the Great History, of Russia

*In the first edition, the stories and history of Russia, and later the USSR, were modestly presented in synopsis form. However, to understand the eighty last years of this empire, which represents 15% of the globe's dry land, one must study, if only rapidly and incompletely, the centuries that preceded them. This holds true for every nation, every people.*

*The dates and facts given here are those presented in most encyclopedias. The author has compiled them without bias or prejudice, caring only about holding your interest. Some readers will find that this sort of presentation has no place in a book like this; I beg them to forgive me, and suggest they skip quickly to page 16.*

From the fourth to the second millennia BC the steppes of central Asia were occupied by various Indo-European peoples, first hunters, later agricultural farmers and horse breeders. Around 2000 BC Indo-European horsemen dominated the whole of Europe from the plains of Kirghizia to the Atlantic Ocean. While the Celts and the Germanic tribes pushed toward the setting sun, the northern part of the Caspian region was occupied by Cimmerians, Greece by the Achaeans and the Ionians. The Bronze age yielded to the Iron age.

Around 1000 BC the Scythians, a new wave of the Indo-European population, took over the Scythian domains. This empire lasted more than 1000 years and was annihilated by the Huns, coming from Siberia about 300 AD. At the same time, the Slavs began to develop an identity distinct from that of the Celts, Germans, and other Indo-European peoples, and occupied an area between the Carpathian Mountains and the Vistula (now Poland.)

For more than ten centuries these villager communities, known as Mir (meaning both Country and peace in modern Russian) prospered according to a triennial land-use cycle

From 200 to 375 AD the plains between the Black Sea and the Urals were crossed by a variety of somewhat barbaric nomads, the Goths, the Huns, the Avars, the Khazars.

From the 5th through the 8th centuries the Polian Slavs, Severians and Radimitches occupy the plains to the west of the River Don.

In the 9th century the Varangians, Normans from Sweden, organized the area into military principalities. The first Viking princes were Rurik in Novgorod in 862 and Oleg around 900 in Kiev.

Oleg united the two principalities and thereby created the commercial axis between the Baltic and Black Seas via the Dneiper River. He also tried unsuccessfully to take over Byzantium.

By the end of the 9th century Kiev is the capital of the first Russian state.

From 980 to 1015 Vladimir the 1st, "the Great" (also known as "Ardent Sun" and canonized in 1203) introduced Christianity into Russia (or rather Kiev). He had converted in order to marry the sister of Basil II, Emperor of Byzantium. The result was an intensification of commerce not only with the West (Byzantium) but also with the Islamic countries.

The principality of Kiev developed toward the west and north-east; more than 90 cities were founded. The feudal society functioned according to the code of the "Russian Truth".

Yaroslav the Wise reigned from 1019 to 1054. His daughter, Anne of Kiev, married French king Henry the First, born in 1008 and king from 1031 until his death in 1060.

As the 11th century ended and the 12th century began, the Principality of Kiev disintegrated into several feudal states, principally Novgorod and Rostov-Suzdal.

Moscow was founded in 1147. (the City celebrated its 850th anniversary with great ceremony in 1998.)

During the 13th century the principalities of Vladimir (Vladimir-Suzdal) and Galicia (north of the Carpathian mountains) joined forces.

In 1223 the Mongol tribes of Genghis Khan (Temujin) invaded Slavic territory and defeated the Russians at the River Kalka.

In 1240 the Mongols, commanded by Khan Batu, son of Genghis Khan, laid waste to Vladimir, Moscow, and Kiev. Only Novgorod remained independent thanks to its prince, Alexander Nevski, named for his victory over the Swedes on the River Neva. He also defeated the Teutonic Knights on the ice of Lake Peipus in 1242. (90)

The Mongols founded the Khanate of the "Golden Horde" along the lower Volga and exacted tribute from all the Russian Princes.

1263. Birth of the Principality of Moscow. The great city grew rapidly and became capital of the Grand Duchy around 1328.

In 1326 the Metropolitan, principal bishop of the Orthodox church, established residence in Moscow.

6000 - 4000 BC

Taming of the horse in central Asia

Birth of the Egyptian civilization

4000 - 2000 BC

Megalithic Civilizations (western Europe)

Minoan Civilization in Crete.

Ancient Egyptian Empire. Pyramids.

Hittite invasions. Indus Civilization.

Egyptian Empire captures Thebes.

Babylonian Empire. Chang dynasty.

Invasion of Greece by Dorians.

BC 1184, Fall of Troy.

BC 336, Alexander the Great (BC 356 - 323)

around BC 160, the Huns raid China

\*\*\*\*\*

c. 100, Roman empire at its apogee.

c. 250, Invasion of western Europe by the Franks, Alamans and Goths.

Magnetic compass used in China

732: high water mark of Arabic expansion.

768-800. Charlemagne

799: Vikings land on Atlantic coast.

c. 800: Foundation of Angkor.

c. 800: Toltecs in Mexico.

c. 900: foundation of State of Koryu (Korea)

c. 1000: Erik discovers the American continent

1054: Birth of the Orthodox Church

1066: Battle of Hastings

c. 1070. Turks invade Anatolia

1095: First crusade. Peter the hermit.

1099: Crusaders take Jerusalem.

1171: Saladin retakes Jerusalem

c. 1200, Incas rule in Peru.

c. 1200, unification of the Mongol tribes

1226, in France: King Louis IX (St. Louis)

1227, Genghis Khan dies

c. 1260, Kublai (grandson of Genghis) becomes Emperor of China - Yuan Dynasty

c. 1275, Japan repels a Chinese invasion

c. 1285, in France. King Philip the Fair

1291: Birth of the Swiss confederation



In 1328, Ivan I, Kalita, received the title of Great Prince of Moscow from the "Golden Horde".

The following century saw the repeated combat between Mongols and Russians. In 1425 Basil II (Vasilii II) was crowned Great Prince of Russia, the first to be named without Mongol authorization.

In 1480, Ivan III "the Great" (1440 - 1505) with his ally the Khan of Crimea, defeated the "Golden Horde" thereby achieving the unification and liberation of central Russia. In 1472 he had taken the title of "Tsar" (derived from the Latin "Caesar".) In 1497 the Rural code allowed peasants to exchange domains during the week of November 19 - 26th.

Ivan IV "the Terrible" (1530 - 1584) fought the Tatars and opposed the Boyards (Great Russian Lords, especially from the Muscovite region) and Polish Princes. Having annexed the Volga region and having begun the Russian drive toward Siberia he was known as the "Great Unifier of all the Russar. The Stroganov family was granted the right of possession subject to the condition that new territories to the east be annexed to Russia. In 1550, he created the Tsar elite personal armed guard known as the Streltsy. In 1553 the sea route via the White Sea was opened by Captain Chancellor. Thus began the era of trade with England.

The end of the reign of tyrannical Ivan IV was marked by territorial reform under which the peasants were subjected to a veritable reign of terror.

After the disappearance of Muscovite Tsar Boris Gudonov (1551-1605) the early years of the new century were marked by great agitation: successions of tsars to power, assassinations, famines, invasions by the Poles, and popular revolts.

In February, 1613, the Moscow Boyards elected one of their own to the throne: Mikhail Feodorovich Romanov, known as Mikhail III, (1595-1645) became the first of the Romanov dynasty.

In 1654 the first book printed in Russia was published.

The 17th century went out as it had come in, with uprisings, schisms, political plots by the Streltsy, armed revolts by the peasants, notably including that of Stepan T. Razin, chief of the Cossacks of the Don.

In 1682, Sophia, becomes regent for her two half brothers, Peter (1672-1725), and Ivan V. Taking advantage of his being outside the power structure, Peter frequents the "foreign" neighborhoods of Moscow, and becomes familiar with the Germans. In 1697 and 1698 he pursued his training in modern techniques of shipbuilding as a simple carpenter in the shipyards of Amsterdam. He traveled abroad during this time, and visited English, Austrian and German academies and museums. Peter, not only a giant of a man (at 2m/6'8") but also extremely intelligent, returned to Russia in 1699 (when he was only 17 years old,) to wrest the throne by force from Ivan and Sophia.

In his 37 years of reign he forged the Russian Empire.

Peter dissolved the Society of the Streltsy, opposed to reforms, and took brutal steps against the Boyards who were alarmed by his Western orientation. He forbade wearing beards, imposed the use of tobacco (!), and adopted the Julian calendar. (81)

The Great Northern War (1700-1721) ended with Peter the first being named Tsar of all the Russar, including Livonia (Latvia), Estonia, Ingria, and part of Carelia (formerly Finnish territories.)

In 1703 Peter the Great founded St. Petersburg (Peter's city.) The architects of this sublime city, constructed in the swamps of the delta of the Neva River, are largely Austrian and Italian. St. Petersburg became the imperial capital in 1712. During this period (1709-1714) the Russians occupied Finland and Poland.

In 1711 he had created the Russian Senate, replacing the "Duma" founded by the Boyards. This organism favored commercial development and conferred nobility some of the rich bourgeoisie. The Nobles were more and more frequently "invited" to enter into the service of the State. In 1716 and 1717 Peter was the first Russian sovereign to make an official visit to the capitals of western Europe. (He met Louis XV, then a child, in Versailles.) In 1721 the Senate bestowed the title of Emperor upon him.

In 1725 he created the Russian Academy of Science in St. Petersburg. Only a few days later he died of pneumonia after a swim in the Neva.

By the time of Peter's death, Russia had taken a great step forward as a nation: there was an effective centralized administration; the Navy, based in St. Petersburg, counted 19 capital ships and the Army numbered 130,000 officers and men. Mining and metallurgical industries were in full development in the Ural region, along with several textile centers and glassmaking production.

Peter's widow, Catherine I, succeeded him his death. Her reign was short and she was followed by Peter II and Anna Ivanovna.

This is the "german" period at the Court: the favorites are Menchikov, Biron and Munnich.

The Imperial Court absorbs 50% of the revenues of the State.

The situation of the peasants and mujiks worsens under the weakened authority.

Elizabeth Petrovna (1741-1762) daughter of Peter the Great, acceded to the throne. She founds the University of Moscow in 1755.

1337. beginning of the 100 Year war between France and England

c. 1360: Ming Dynasty in China

1386: Tamerlane conquers Persia

1431. Joan of Arc is burned at the stake in Rouen

c. 1455: Gutenberg invents printing

1492: Christopher Columbus's first voyage

1515 Francis I is King of France

1519 Charles V is Emperor

1520: Suleiman the M. is Sultan of the Ottomans

c. 1551: the Jesuits arrive in Japan

1553: Mary Tudor becomes Queen of England

1558: Elizabeth I becomes Queen of England

1569: Mercator draws the 1st map of the world

1588: "Invincible" Spanish armada defeated by English fleet

1589. Henry IV becomes King of France

1595. Japan defeats China and takes Korea

1613: Louis XIII becomes King of France

1621: The Mayflower arrives in Massachusetts

1642: Montreal is founded

c. 1650: Ming dynasty is overthrown by the Qing dynasty

1643-1715: Reign of Louis XIV of France

c. 1660: expansion of the Ottoman empire toward Europe (Austria, Ukraine, Crete)

c. 1683: Turks rebuffed; Hungary restored to Europe

1683: French explore Mississippi valley; establish French Louisiana

1697: English establish Calcutta

c. 1697: Manchu protectorate imposed Mongolia (until 1912)

1715: French colonists expelled from Acadia, which becomes Nova Scotia (New Scotland)

1756-1763. Seven Years War pitting England and Prussia against France and Austria

1763. England takes Canada from the French

1765: Joseph II becomes Holy Roman Emperor

1768: France buys Corsica from Genoa

Between 1759 and 1761, defensive war of Frederick II of Prussia. The Austrian and Russian armies annihilated the Prussian army in the battle of Kunersdorf.

Russians, victorious, plundered Berlin in 1760.

1762. Catherine II ( 1729-1796 ) nicknamed "Catherine the Great" got rid of her husband Peter III. Tzar from January until June, 1762. Peter had been accused of admiring Frederick the Great, with whom he had signed a separate peace treaty.

Renowned for having a "lively" love life, and to avoid being scolded for her adulteries, Catherine, assisted by her brother, overturned Peter III and soon after eliminated him completely by having him strangled. To consolidate her power, the tsarina presented herself as the defender of orthodoxy.

She reigned nevertheless as an "enlightened despot" protecting and welcoming as her "intimate enemy" Frederick II, and the French philosophers Voltaire and Diderot.

By 1763, the Empress favored the establishment of colonies for Germans in the Ukraine, the Volga then in Crimea, by promising them fiscal immunity and exemptions from armed service. At the same time, she began the creation of metallurgy industry in the Urals, of textile industries in Moscow, Ivanovo, and Vladimir and of smelting and founding in St. Petersburg.

In 1764, she deconsecrates the possessions of the Church. Two million farmers became serfs of the state. (In 1783: Introduction of serfdom in the Ukraine).

In Poland, Count Panin promoted the politics of Catherine II. Stanislas Poniatowski, a favorite of Catherine, was elected foreign secretary in 1764.

The divisions of 1772, 1793 and 1795 between Russia and Prussia annihilate bit by bit the realm of Poland. (Note: Polish legions, commanded by general Dombrowski, fought with Napoleon who, in 1807 founded the Grand Duchy of Warsaw. The fall of the French Empire sounded, after the "empty revolution" of 1830, the death knell of the Duchy, which once again became a Russian province.

Paris became the center for Polish emigration

1773-1775, Revolts of the serfs and uprisings of the Cossacks from the Ural region, under the instigation of the adventurer Pugachev who convinced his followers that he was the dead Tzar Peter III.

In 1790, Catherine II took a stand against the French revolution.

Following the successive partitions of Poland (and Lithuania) and of her victories over the Turks (between 1768 and 1795), Catherine's empire expands its territories.

In 1796 at the age of 67, she disappears after a reign of 34 years.

Paul I, Tzar (1796-1801) and Grand Master of the order of Malta, enters the Anglo-Austrian coalition of 1792-1797 after the occupation of the Malta by the French and their defeat in Aboukir in the Egyptian campaign of 1798-1799).

After the victory, then the defeat, of General Suvorov by the troops of Massena, Paul I leaves the second coalition (1799-1802), upset by the English victory at Malta. Georgia is annexed.

Having become mad and particularly violent, the Tzar is eliminated in 1801 by a group of officers.

The young Prince Alexander Pavlovich (24 years old) who had taken part in the plot, took power. He was at first favorable to liberal reforms. The Senate obtained the right of "remonstrance", and by its demand, State Secretary Speranski drew up a draft Constitution with separation of powers: the Imperial council and the Duma (an elected parliament).

Between 1803 and 1858, 15% of the serfs were freed. In 1818, the serfs of the Baltic provinces were liberated.

In 1805, Tzar Alexander I became an ally of Austria and Prussia against Napoleon.

Defeat at Austerlitz, Eylau. Treaty of Tilsit (1807) Russia then allied itself with France and Austria. An economic crisis forced the Tzar to abandon the Continental blockade.

Tariff barriers were erected to favor the import of the manufactured goods of which Russia was in great need. Trade with England was favored.

Wars against Sweden and Turkey brought parts of Finland and Bessarabia to the Empire.

June, 1812 Napoleon and the "Grande Armee" (600,000 men, 180,000 horses) crossed the Niemen. Battles of Smolensk and Borodino (28,000 Frenchmen and 45,000 Russians killed).

In October, the French occupied Moscow, in flames

Kutuzov, commanding general of the first "Great Patriotic War" harassed the French troops by his clever use of the vast space and climatic rigors of his motherland, avoiding any major engagement.

The Russians repelled the invader at Berezina. At the end of 1812, only 10,000 survivors and a few hundred horses arrived at the Prussian border.

While the Russian nobility, becoming more europeanized, was favored by the Napoleonic "adventure", the victorious Tzar underwent a transformation under the influence of Mrs. deKrüdener's mystic and conservative ideas.

And from 1820 Alexander reverts to an anti-revolutionary policy. Bureaucratic tyranny peaked at that time with the establishment of military colonies. The serfs are deported en masse to Siberia without a hearing

1775-83: war of independence of the North American colonies.

1787: Constitution of the United States of America

1788: George Washington elected president

1788: Austro-Turkish war

1789: French Revolution begins

1792: Proclamation of the French Republic

1796: Bonaparte's Italian campaign

1799: Alaska becomes a Russian possession

1799: Bonaparte's First Consulate

c. 1800: beginning of a mass emigration of Europeans toward America, South Africa, Australia. European population shrinks by several million habitants.

1804: Napoleon Bonaparte, Emperor

1804: revolt of the Serbs against the Turks

1809: 5th Coalition: Wagram. Austria signs the Peace of Vienna

1814: Treaty of Ghent establishes the 49th parallel as the border between USA and Canada

c. 1810: beginning of western cultural expansion in Japan

1813: 6th coalition against the French

1814: Napoleon exiled to Elba

1814: first steam locomotive by Stephenson

1814: birth of the first Germanic Confederation, with 39 member states

1815: The hundred days campaign. Waterloo

1816: first "images" of Niepce.

Starting at the end of the previous century, the serfs were able to be sold or mortgaged just like cattle, the parents often being separated from their children.

Between 1826 and 1861, more than a thousand peasant uprisings were repressed.

In 1825, Alexander I wishes to renounce orthodoxy and wants to guide the Russian Church back to the Church of Rome. He "dies" during a trip to Crimea.

Supported by movements and advocacy groups, a handful of officers took advantage of the death of the Tzar to organize an uprising. The "Decabrist" (Decembrist) revolt was quashed in a bloody reprisal.

Nicolas I, third son of Paul (1825-1855), based his autocracy on the Orthodox Church, but his administration is no more successful. Count Benckendorff organized the state secret police. Nicolas received the nickname "Europe's Gendarme".

Polish revolutionary movements were repressed (06).

1847, "The Communist Manifesto" by Karl Marx and Friedrich Engels

1851, Rail link between St. Petersburg and Moscow. (51)

Growing Russian influence in the Balkans and conflicts between Greek and Catholic monks in Jerusalem led to the Crimean war (1853-1856). In the siege of Sebastopol, 120,000 people died from cold and cholera. Naval inferiority, general hostility of the European states and internal disorders were responsible for the Russian defeat.

1856 - Treaty of Paris forbidding the maintenance of a Russian fleet in Black Sea.

This defeat by the Western allies revealed how backward the administration and Russian army had grown under Nicolas I's administration. The economy was bleeding white.

Having crushed the Decembrist revolution the first day of his administration, the Tzar Nicolas I had quickly delayed the anticipated liberation of the serfs, strengthening censorship, and favoring the upper class and creating a police and customs "sanitary" cordon around Russia, insulating it from Europe (thus creating, in a sense, a first version of the iron curtain).

1855 - Succession of Alexander II (1855-1881).

The institution of serfdom, whether in the form of personal property (obrok) or of duties (barchchina) made any progress impossible.

In 1856, military colonies were abolished. Amnesty for the Decembrists and in 1861 abolition of the serfdom for about fifty million serfs. Updating of the "MIR" system with fiscal empowerment of communities. Promotion of primary and secondary education, decentralization of administration of central authority and of local districts. Legal reform allowing independence of the magistrates and lightening of press censorship.

1860, Creation of the port of Vladivostok.

1861, Abolition of serfdom.

In 1866, a failed attempt against the Tzar revived autocratic reflexes.

1867, Karl Marx's "Das Kapital" was published.

1867, The crown sells Alaska to the USA for seven million dollars.

1869, The first revolutionary circle is created in St. Petersburg. (the First International, created in London in 1864, failed because disagreements between Marxist and anarchists. 1871, the Paris Commune; 1889 foundation of the Second International).

In 1874, conscription and 6-year universal military service (still current in 1992) was imposed.

1875, Acquisition of Sakhalin peninsula in exchange for the transfer of the Kuril Islands to Japan.

1876, Creation of the terrorist society "Zemlia i Volia"

1876, Death of M. A. Bakounine, revolutionary and theoretician of Anarchy

13 March, 1881, Alexander II is assassinated by a group of nihilists who are immediately persecuted.

His son, Alexander III (1845-1894) was a dedicated Slavophile who advocated traditional spiritual values unique to Russia, restored absolute dictatorship, by means of the church but also of the police. (The Okhrana, a tsarist political police force, kept a close eye on schools and universities).

Serfs and workers were then subjected to the arbitrary power of the landowners and the industrial capitalists. Anti-Semitic measures (1881) and pogroms (1882) increased, along with brutal "russianization" of border regions.

1891, Beginning the construction of the Transsiberian railroad (finished in 1917) and rapprochement with France (commercial accords of 1893, and the naming of the "Alexander III" bridge over the Seine in Paris).

1894 - Nicolas II (1868-1918), and successor of Alexander III, was a weak and indecisive monarch. The celebration of the coronation in Moscow ended with the death of three thousand persons in what became known as the disaster of Khodynka.

Finland in 1898: by the February decree, Nicolas II represses a Finnish nationalist movement, and between 1899-1904 Russian becomes official language in Finland...

1822. Greek uprising against the Turks  
Independence in 1829

1824: Charles X succeeds Louis XVIII on the throne of France

1825: construction of the first railroad in England.

1830 Belgium achieves independence

1834. creation of the Zollverein, a customs union presaging German unity.

1837-1901: Victoria, Queen of England and Empress of India

1838: invention of vulcanization (of rubber) by Charles Goodyear

1839: Photography is offered to the world

1845. famine in Ireland; mass emigration to America

1848. the People's Spring: Hungarians, Poles, Czechs, Croats, and Serbs, rise to claim independence.

1849: Livingstone, a Scot, crosses Africa from west to east.

1851: Universal Exposition in London

1854: Friendship pact between Japan and USA

1855. Napoleon III promulgates laws regulating labor conditions for women and children. Professional leagues (unions) are authorized.

1859: discovery of petroleum in Pennsylvania - "black gold" rush

1860: opening of the Japanese embassy in Washington

1861-1865: War of secession in the United States

1867. creation of the Dominion of Canada

1868: beginning of the Meiji era in Imperial Japan. Industrialization.

1869: Tokyo, formerly Edo, becomes the imperial capital.

1870: 5 Sept creation of the "Internationale" (words by E. Pottier, music by P. Degeyter, both French). This is the Soviet national anthem from 1917-1941

1896: First modern Olympic Games (P. de Coubertin)

By the turn of the century, Finance minister De Witte wanted to transform Russia into a "greenhouse of capitalism." Development occurred rapidly but military expenditures strangled the country in debt, and the country exported its grain despite famines (1891).

The country nearly doubled its population in thirty years (1880-1917), going from 98 to 175 million inhabitants. Those in power wanted to annex Manchuria in order to take the Transsiberian railway to the geographically preferable terminus of Port Arthur (instead of Vladivostok, with its port frozen in for half the year.) At the same time Japan wanted to annex Korea. England signed a treaty with Japan to this effect. In addition, a Franco-British naval agreement forbade the French from helping their Russian ally in the Far-East.

In 1900 Lenin created the clandestine Marxist newspaper "Iskra" (the Spark).

1901: Foundation of the Revolutionary Socialist Party of Russia (S. R.)

In 1902, Bezebrazov, the State Secretary responsible for the "questions of the Far East" (and owner of Manchurian mining enterprises) refused to apply the Russo-Japanese agreement calling for the evacuation of Manchuria by Russia and of North Korea by the Japanese. Conflict was inevitable.

Prime Minister V. Plehve declared "that war would be short and victorious."

It was a diplomatic, military and human disaster, a monstrous rehearsal of what would be ten years later the first World War. It ended in 1905 with the annihilation of the Russian fleet that had come from the Baltic and the defeat of Tsu Shima. Japan obtained the South of Sakhalin, Port Arthur, control of Korea and southern Manchuria.

The conflict shook the foundations of tsarism; demonstrations and popular strikes occurred.

In 1903, in Brussels, the Second Congress of the Russian Social Democrat Party split into the orthodox Marxist "Mensheviks" - partisans of a wait-and-see policy (under Leon Bronstein alias Trotsky) and "Bolsheviks" who demand the dictatorship of the proletariat. (under Vladimir Ilitch Ulianov later to be known as Lenin.)

1903: Pogroms in Gomel and Kishinev in Moldavia.

22 January, 1905, in a peaceful demonstration for "Red Sunday," led by Pope Gapone (who, we would learn later belonged to the Okrana!) the army fired on the procession. The marchers were going to submit a petition to the Tsar - bread and brotherhood (see *Doctor Zhivago* by Pasternak).

One thousand were killed and more than five thousand wounded. Three million workers struck in protest. This strike was brutally crushed by the army.

**This was the first Russian revolution.**

The wave of strikes and riots (the Battleship Potemkin) in Odessa and in Kronstadt reunited the two revolutionary groups, and led to the creation of councils (soviets) of workers and farmers.

1908: Annexation of Bosnia-Herzegovina by Austria. A loss of prestige for Russia, but the spark for emotion and mobilization in Serbia which had to abandon its plans for "Greater Serbia."

1912: Strikers were gunned down at the Lena mines. V. I. Ulianov, took the name Lenin in their memory. 1912-1913 Balkan Crisis.

**October, 1912.** First Balkan War. Four allies, the Serbs, Bulgarians, Greeks and Montenegrins, declared war the Ottoman Empire, which was defeated. In May, 1913: Treaty of London.

June, 1913. Second Balkan War. Austria threatened to intervene.

August, 1913. Treaty of Bucharest. Serbia was disappointed by Austro-Hungarian opposition, preventing its dreams of national unity and access to the Adriatic.

**26 June, 1914, Archduke Francis Ferdinand, the heir to the Austro-Hungarian throne, was murdered with his wife by a Bosnian student in Sarajevo.**

6 July, having made sure of the support of Germany, Vienna declared Serbia responsible and sent a 48 hour ultimatum to Serbia. Russia supported Serbia.

20 July French President R. Poincaré on official visit to Moscow, assured Russia of its allegiance to the alliance. 28 July, Austro-Hungary declared war Serbia.

**29 July, Russian mobilization.** 31 July, Germany, declaring a "state of danger of war," sent a 12 hour ultimatum, requiring the suspension of the general mobilization of Russia and requiring from France a statement of neutrality in case of Russo-Germanic conflict, with French fortresses at Toul and Verdun as security.

**1 August, German general mobilization and declaration of war Russia.**

**3 August, French general mobilization and declaration of war by Germany France.**

4 August, Belgium, a neutral country, refused to allow German troops to cross its territory. England demanded from Berlin respect for Belgian neutrality, equivalent to a declaration of war. Italy, by opposition to Austria, lined up with the allies.

2 August, Turkey signed a treaty with Germany (against Russia).

**12 August, 1914, Europe exploded.**

23 August, declaration of war by Japan, which wanted to widen its influence in China, Germany and particularly its possessions in China (Tsing Tao).

*1898: Agreement among Germany, Great Britain, France and Russia to install naval bases in China.*

*1900: Boxer Rebellion, crushed by an international expedition. The 55 days of Peking.*

*1902: Anglo-Japanese Alliance*

*1907, United States limits Japanese immigration.*

*In July, 1909: Louis Blériot crosses English Channel in his "aeroplane."*

*1910: Annexation of Korea by Japan.*

*First Japanese airplanes.*

*1912-1917: US expansion in the Pacific and Antilles.*

*5 Sep., 1914: Death of Li. Charles Péguy along the Marne.*



In September, Great Britain, France and Russia agreed not to conclude a separated peace. On the Western front, from the battle of the Marne to the hell of Verdun by the Chemin des Dames, the war, initially of maneuvers, became a frightful war of positions. On both sides, these battles caused several million victims. On the Eastern front, the end of 1914 saw several Russian victories (Brussilov), but starting in early 1915 reverses began to accumulate: battles of the Carpathian Mountains, Galicia and Bukovina; at the Mazurian Lakes 100 000 Russian prisoners are taken. In July 1915 Austro-German offensive and the fall of Warsaw, Kovno, Brest-Litovsk and Vilna. June to August, 1916 - Russian counter-offensive (Broussilov) but with considerable losses; the Russian army began to scatter. It was the beginning of the demoralization of the troops (abetted by internal Bolshevik agitation.) 1917 - victorious German offensives. In September, 1917, Riga is taken. The length of the war, and difficulties of provisioning (food and munitions) accelerate dissatisfaction and confusion. From 27 February until 12 March, 1917, first revolution in Petrograd (10); the army went to the side of the insurgents. Foundation of the temporary Executive committee of the Council (Soviet) of the Workers representatives. Formation of a temporary government with the prince Lvov. 2 March, the Tsar NICOLAS II abdicated. The temporary government wanted to pursue the war alongside the allies, but the Soviets, united with the soldiers of Petrograd, demanded peace. 16 April, 1917: Vladimir Ilitch Oulianov, alias Lenin, returned to Russia from Switzerland by way of Sweden. He crossed Europe, according to legend, 'in a sealed railroad car,' with the blessing of German Foreign Office and the agreement of the High Command, who were expecting Lenin's return to lead to Russia's withdrawal from the world conflict, thus freeing the Eastern front. Arriving in Petrograd, Lenin assumes command of the most intractable group (the Bolcheviks) of the Russian Social Democratic Workers party. 17 April: Lenin published the "April theses" calling for nationalization of banks, worker control of factories, land to the farmers, immediate peace, and the transfer of power to the Soviets. July, 1917: Failure of the Bolshevik "coup d'état" in Petrograd; Lenin escapes to Finland. Kerensky, the Prime Minister, is simultaneously opposed by the extreme right (Korlinov's putsch) and the workers who had espoused Bolshevism. 5 Nov 1917 (23 October on the Russian calendar) Lenin returned from Finland and decided with Trotsky to initiate an insurrection using the Red Guard and the RMC. (Revolutionary Military Committees.) 7 November (25 Oct.) the cruiser Aurora, arriving from Cronstadt bombarded the Winter Palace. This was the October Revolution. Kerensky escaped. At a meeting of the Second All-Russian Congress of Soviets, the Bolsheviks obtained the majority. Lenin is named President of the Soviet, Trotsky heads foreign affairs. The next day unconditional peace was offered to the warring parties and distribution of lands to the peasants was approved. 20 December, Felix E. Dzerjinski created the Cheka. (18) Dec., 1917 Jan., 1918 At peace negotiations in Brest-Litovsk, Trotsky, representing Russia, proclaimed the cessation of hostilities without accepting Germany's conditions. January, 1918: Elections in the Constituent Assembly. Menshevik majority. The Revolutionary Socialist were in power for one day. The assembly is scattered by force, opposition press suppressed (until ... 1992.) Third Soviet Congress: proclamation of Russian Soviet Federal Socialist Republic. Declaration of the Rights of the People. Ratification of the peace treaty. In mid-February the Germans broke the armistice and resumed their march on Petrograd. The interrupted negotiations started again at Brest-Litovsk. Soviets agreed to give up Poland, Ukraine, White Russia (Byelorussia), the Baltic States, Finland, Georgia, Armenia. April, 1918: Soviet installation in Moscow; the Politburo, with five members: Lenin, Trotsky, Stalin, Kamenev, Bukharin, was created. April, 1918. Trotsky organized the Red Army in 17 Armies of 8,000 to 15,000 soldiers each. The Tenth Army however, counted 40,000 soldiers, 240 artillery pieces, 13 armored trains. In July, 1918: The Tsar, the Tzarina and their children are executed in the "Ipatiev" house in Ekaterinburg. (Razed in 1977 by Yeltsin's order.) July-August, 1918: revolts by the adversaries on the extreme left, Lenin seriously wounded by the Socialist Revolutionary F. R. Kaplan. The S.R. liquidated by the Leninists.

5 Nov., 1914 the allies declare war on Turkey

Dec., 1914 Arabs in Mecca declare "holy war" on Turkey

7 May, 1915 the Lusitania is torpedoed and sunk 1915 Armenians deported and massacred by Turkey

22 Apr., 1915 Germans use mustard gas at Ypres, Belgium

24 Apr. the Allies disembark in the Dardanelles

6 Apr., 1916 USA declares war on Germany

Aug., 1916 nationalist uprising in Ireland: "Bloody Easter"

10 Jan., 1917 the Allies proclaim their goals for the war: restitution of Alsace-Lorraine to France, restoration of Belgian and Serbian sovereignty.

Feb., 1917 Germany declares unrestricted submarine warfare

Jul., 1918 on the western front, the Germans are pushed back at the second battle of the Marne

14 Oct., 1918 Independence of Czechoslovakia; proclamation of the Union of the Serbo-Croats and the Slovenes.

11 November 1918: Armistice  
End of First War World

## The civil war.

Spring, 1918. The European and American allies landed a pro-tzarist, anti-Bolshevik expeditionary force in Murmansk to support the "white" counter-revolutionaries (in all, about 1 million people under the orders of generals Denikin, Krasnov, Wrangel, Yudenich and Miller.)

The allies tried to take advantage of the civil war to advance their interests, whence disagreement and divisions. In spite of some victories, the forward troops in Ukraine, Estonia and the Urals were quickly wiped out by a motivated Red Army. Trotsky, who showed himself to be a skilful strategist, is victorious on all fronts but at the price of millions of victims.

1919: Foundation of the Communist International.

In March, 1921, the sailors of Cronstadt rose up and demanded a return to the basics of Soviet power, rejecting dictatorship. Leninist Centralism was threatened. The Red Army, led by Tukhachevski under Trotsky's orders, bloodily crushes the mutiny.

This was the beginning of the purges. Social Revolutionaries and Mensheviks were eliminated.

In October, 1921, under the control of the Soviets, the Far East republics of Tchita and Vladivostok were created. At the end of November the Red Army re-occupied Vladivostok.

The consequences of civil war were multiple: Intensification of the dictatorial state, Intensification and expansion of Communism. (The Third International, gathered in Moscow in August, 1920, imposed 21 absolute conditions to the national parties).

Trotsky attempted to make external expansion of communism the primary objective, but collided with Stalin, a supporter of a temporary inward regrouping of Russian communism.

But the most serious consequences were economic and human.

Lenin established compulsory work with equality of salaries. He nationalized the banks, foreign trade, firms with more than five employees and transport companies.

The peasants' harvests were requisitioned. Consequences: the workers worked slowly, the farmers produced only for their needs. Production levels fall by half. Inflation is monstrous, comparable to that of Germany.

The famine of 1921 required the intervention of the High Commission for Refugees (Nansen.) Civil war, repressions, famines, great epidemics (typhoid) caused between 1918 and 1928 more than 10 million deaths.

March, 1921. Fearing new revolts like Cronstadt, Lenin introduced the New Economic Policy (the NEP.) On 21 March automatic "withdrawals" from the harvests were abolished, the collectivized equipment returned to the peasants, the state companies restructured along capitalist lines (profits, investments.) Small firms were denationalized. Currency circulated without restriction. Results were immediate.

6 February, 1922, Cheka was replaced by the GPU.<sup>(18)</sup> From 1922 until 1924 the GPU will be steered with an iron hand by F. E. Dzerjinski.

16 April, 1922. Treaty of Rapallo. Germany relinquished claims on its companies nationalized in Russia. In exchange for bank credits, for the technical support of German engineers and the training of Russian engineers in Germany, the USSR authorizes, in disregard of the terms of the treaty of Versailles, the training of tank regiments against Kama (between Kazan and Sverdlovsk), of the aviation and airborne commando groups in Lipietz and experiments with gas at Saratov (on the Volga.) The restoration of diplomatic relations with Germany follows logically. The world's first international civil air liaison is between Moscow and Berlin.

30 December, 1922 Creation of the USSR

1922-1923. The first "Troika" (a harness for 3 horses; a triumvirate) assumes power: Stalin, Kamenev and Zinoviev.

In April, 1922, XI Congress names Stalin General Secretary of the Communist Party

February, 1921 Restoration of diplomatic relations with Great Britain, then Italy, Austria, Sweden, Norway and Denmark, China, Mexico and finally France.

21 January, 1924. Death of Vladimir Illitch Ulianov, alias Lenin. Born 22 April, 1870, he was 53 years old

October, 1926, Trotsky was excluded from political office. Stalin, a russophile, contrary to Lenin, was anti-semitic. Lev B. Rosenfeld, alias Kamenev, G. I. Zinoviev, Radek, Joffe were eliminated in the purges of 1936.

In May, 1927, the penal code defined as "counter-revolutionary" any action tending to weaken Soviet power. In December, 1927, Trotsky was expelled, to be later murdered in Mexico.

At this decade's end, collectivization, executions and deportations to the "Gulag" caused 10 million deaths. (Source: demographer Maksudov).

October, 1928 Five Year Plan for heavy industry which received 3/4 of all available investments. Production of iron and steel doubled. Widespread "propaganda and major barriers" against private industry. Mass rural collectivization into sovkhos and kolkhos.

28 Jun., 1919 Treaty of Versailles is signed. Germany returns Alsace-Lorraine to France and loses all its colonies. Its army is limited to 100,000 men

10 Sep., 1919 Treaty of St. Germain. Austria is limited to its German speaking territories.

4 Jun., 1920 Treaty of the Trianon. Hungary is reduced to its Magyar territories.

10 Aug., 1920 Turkey loses the totality of its non-Turkish territories.

1920 Prohibition begins in the USA.

The 20th Amendment to the Constitution gives women the right to vote.

Dec., 1920 Congress of Tours. Creation of the French Communist Party, linked to the "III International"

1921 The Emir Faisal becomes king of Iraq. (Laurence of Arabia.)

Oct. 1922 March on Roma. Mussolini becomes head of Italian government.

1924 Model T Ford introduced.

24 Oct., 1924 "Black Thursday" on Wall Street in the USA

16 Oct., 1925 Treaty of Locarno. Germany guarantees the French and Belgian borders, but not its eastern borders.

1926 Hirohito becomes Emperor of Japan. The Showa era begins.

1926 Creation of Lebanon

May, 1927 First transatlantic solo flight by Charles Lindbergh.

1927: Sound movies introduced.

1928: Penicillin discovered by Fleming.

1929 The "N.E.P." was abandoned

Intourist was created. Forced collectivization of agriculture. (The Great Turning Point.) Frenzied industrialization. 1930 Struggle against "rich" peasants (Kulaks) began.

16 November, 1933 Establishment of diplomatic relations with USA.

1933 Second Five Year Plan. Appeal for "emulation" between workers.

1933 - 1934 Millions of peasants - entire villages - were deported to Siberia (A million were executed; 5 million died of starvation.)

18 September, 1934, The USSR enters the League of Nations. Rapprochement with western democracies (against Nazi Germany.)

October 1934 The NKVD replaced the OGPU and obtained absolute authority over labor camps and collective labor institutions.

December, 1934, S. M. Kostrikov, known as Kirov and a close ally of Stalin's, is assassinated. With this as pretext Stalin began a new round of "cleansing." 98 out of the 139 members of the Central Committee are liquidated, generally with their family members.

1935: While the norm for coal mining was 7 tons per day per person, Stakhanov (with 2 buddies), mined 105 tons! Although encouraged by Stalin, "Stakhanovism" was opposed by union leaders as being another form of exploitation of labor. The problem was solved by a bloody campaign against the union leaders.

The period was characterized by the terms "mobilization, reaction, repression" and by the "udarniki" (shock workers,) "mnogoton chiki" (elite workers,) "stakhanovists", but also "zek" (those deported to the Gulag - G. U. Lag.)

1935 Capital punishment for 12-year olds (and up) authorized.

First branch of the Moscow subway system (11km/7mi.)

2 May 1935 Mutual assistance treaty between USSR and France (under the government of Pierre Laval.)

1937- 1938. Sombre years for political trials. 7 million citizens were arrested; of these more than a million were executed, and two million died in the labor camps.

16 June, 1937 on Stalin's order, citing treason, (the accusation supported by falsified documents, with the unwitting complicity of Czech President Benes, and the Nazi secret services,) Fieldmarshall Mikhael N. Tukhachevski was executed, along with 4 other marshalls (out of 6), 75 members of the Military Council (out of 80), nearly 400 generals, 8 admirals, 11 political commissars, and 35,000 officers

The Red Army was truly decimated - during peacetime.

1938 New trials against "Trotskyiste anti-Soviets" resulted in 20 million technical and administrative middle managers being deported to the camps.

July, 1938 Japanese aggression was repulsed near Lake Khassan.

23 August, 1938 A week prior to the Nazi invasion of Poland Stalin signed a Sovieto-German non-aggression pact. This also establishes a Soviet sphere of influence over eastern Poland, Rumanian Bessarabia, and the Baltic countries, and created a program of economic and military cooperation with Germany.

Nevertheless Hitler saw in the endless wheatfields to the east his "Lebensraum" (room to live) for the German race and his clearly enunciated intention was to destroy "Judeo-Bolshevism."

April, 1940 Finnish war, in which Finland lost Carelia and part of Lapland. On this occasion the Red Army showed all its weaknesses. The USSR was excluded from the League of Nations.

June, 1940 Baltic countries occupied.

22 June 1941 Stalin, even though warned by Churchill and Sorge, the spy, was surprised by the German invasion. Hitler, fearing that his supplies of Rumanian petroleum might be cut off, attacked without thorough preparation. 800,000 Russians of German origin were deported from the Volga region to Kasakhstan.

From June to December, the Germans had the momentum but Soviet counter-espionage fools the Germans about their losses. 60 Divisions had been destroyed, but Hitler believed the figure to be more than 200.

The German occupation was so brutal that even in countries wanting to cast off the yoke of communism resistance groups are formed to counter them.

On the northern front, the siege of Leningrad began on 9 September 1941. General Popov's and Commissar Idanov's armies were encircled by General vonLeeb's forces. Despite 900 days of siege the Russians did not capitulate. The city was finally liberated 27 January, 1944.

1941- 1942, 1360 major enterprises, representing 10 million workers, were displaced toward the Urals, the Volga region, and Siberia. From October, 1943 to June, 1944 Stalin ordered the deportation of 10 million people of Chechen, Ingush and Tatar ethnic origins. The Crimean Republic, having collaborated with the Nazis, was suppressed.

1931: Invasion of Manchuria by the Japanese.

Nov., 1932: F. D. Roosevelt elected president.

1932: In the USA: 12 million people unemployed.

May 1933 Prohibition. (Al Capone)

30 Jan., 1933: Hitler becomes chancellor.

14 Oct., 1933: Germany withdraws from League of Nations. Japan follows.

Jan. 1934. In USA, devaluation of the dollar.

1934: In China: the beginning of the "Great March." Mao Zedong.

1934: Radioactivity discovered by Joliot-Curie.

16 Mar., 1935: restoration of the draft in Germany. This is the first violation of the treaty of Versailles.

Oct., 1935: Italian conquest of Ethiopia.

4 Jun., 1936 in France: Government of the Popular Front led by Leon Blum.

1 Oct., 1936: devaluation of the franc.

Jul, 1936 Beginning of Spanish civil war.

25 Nov., 1936: German-Japanese pact against the Komintern

26 Apr., 1937: Guernica.

Aug., 1937: Franco is named Caudillo.

1937: Japanese general offensive in China. Occupation of all the cities of the North, Shanghai then Nankin where... 300,000 are massacred

Nov, 1937 Rome / Berlin axis

13 Mar., 1938: Anschluss (Austria "joins" Germany.)

Sep., 1938. Chamberlain / Hitler summit meeting. Munich accords.

28 Mar., 1939: General Franco seizes Madrid. One million die in Spanish civil war.

7 Apr., 1939 Italy invades Albania

1 Sep., 1939: Invasion of Poland - Danzig.

3 Sep., 1939: Great Britain and France declare war on Germany.

7 Dec., 1941: Japanese attack Pearl Harbor.

1941: The USA and Great Britain enter war against Japan.

Inexplicably, it was only on September 30 that the German tanks received the order to take Moscow. But winter was early that year. And if the natural elements, the dust and mud were the Russians' allies, as the ground froze, Guderian's tanks resumed their advance.

The German forward motorcycle scouts were able to make out the Kremlin through their binoculars. They would not advance any farther. On December 5, after a wild counterattack, the Germans retreated 250 km. They never again got any closer to the capital.

Hitler changed plans and decided in spring, 1942 to head south, intending to go back up the Volga and take the capital from behind. On 12 July, the armies dashed between Komsok and the Sea of Azov, but the left wing was stopped at Voronezh. The right wing reached the Volga to the south of Stalingrad. Hitler threw half of his 150 divisions (5000 tanks) towards the Caucasus. They reached Ordjonikidze in October. The other half, commanded by General von Paulus, was blocked in Stalingrad.

18 November, 1942, the Soviets, under General Zhukov, launched a counter offensive against the German rear guard in Stalingrad (300,000 people under siege.) Hitler ordered von Paulus, in the meantime promoted to the rank of Field Marshall, to resist until death.

1 February von Paulus surrendered, his army hors de combat. These battles represented an incredible number of Russian casualties. (500,000 dead.) Of the 300,000 Germans who had been surrounded, 91,000 were taken prisoner. Only 6000 returned from captivity in 1955-56.

The Russians reconquered the southeast up to the Ukraine.

March, 1943, German counterattack. Kharkov was retaken on March 15. But the advance was again stopped to the north of Kursk.

August 23, 1943, the Germans again lost Kharkov, then Smolensk (25 Sept.), Kiev (6 Nov.) and finally in April, 44, Odessa and Sevastopol. At the end of April, 1944, the Soviets attacked Rumania, Poland (in August), the Baltic States, Bulgaria (in September), and Hungary (in December).

On February 22, 1945, they crossed the Vistula. Danzig capitulated 29 March. Berlin was overrun in April. 30 April, the Red Flag flew over the Reichstag.

1 May, Hitler committed suicide. The following day, Berlin surrendered.

7/9 May the German act of surrender was signed in Reims, France, and in Berlin by Generals Keitel (Germany), Zhukov (USSR) and Tedder (GB) in the presence of Generals de Lattre (F) and Sperez (USA). Czechoslovakia and Austria were occupied at the beginning of May.

In the USSR, 1710 cities, 70,000 villages, had been destroyed, as well as more than 65,000km (40,000mi.) of railways. 30 % of the national wealth was annihilated. More importantly, this war claimed more than 27 million victims, including 8,668,000 combatants, to which must be added the victims of Stalin's merciless repression.

The USSR kept the territories it had acquired since 1940 (obtained in Yalta) but greatly extended its influence in the future satellite states, (then occupied by the victorious Red Army): Poland, Hungary, Czechoslovakia; Rumania, Bulgaria, Yugoslavia. Not much later, the army and economy of the eastern zone of Germany were also integrated into those of the USSR.

17 July to 2 August, 1945: Potsdam Conference, with Churchill (followed by Attlee), Stalin, Truman.

8 August, 1945, 48 hours after the American bombardment of Hiroshima, the USSR declared war against Japan. Japan surrendered on 2 September.

February, 48, Czechoslovakia tried to extricate itself from Soviet sphere of influence. But a police coup d'etat restored the country into the hands of the communist camp. In compensation, the Western powers decided to rebuild West Germany.

In reply, on 20 June, 1948, the Soviets began the blockade of (west) Berlin, isolated deep in the middle of East German territory.

In January, 1949: Creation of "Comecon", with headquarters in Moscow, of which the countries under "influence" as well as certain countries of Central America and Africa are members. (This economic organization was dissolved 28 June, 1991 in Budapest.) On 11 May, 1949, end of the Berlin blockade.

On 14 July, 1949, explosion of the first Soviet atomic bomb.

1950: Friendship pact with the Peoples' Republic of China.

On 14 October, 1952 at the XIXth Congress, Stalin announced an important reorganization of the party.... January, 1953, trial of the "white shirts", prelude to new anti-semitic purges.

On March 5, 1953, Joseph Vissarionovich Jugachvili, alias Stalin, (stal=steel) born in 1879 in Gori, Georgia, died after 14 hours "without care."

9 March, Stalin's funeral. The Communist world had lost its "little father of the people," responsible for the death of millions of Russian and Soviet citizens (*Archives of KGB Gen. A. Karbanov*)

On 13 March, the MGB-MVD became the KGB (Committee for State Security.)

On 28 March, decree of amnesty and revision of the Soviet Penal code.

Malenkov became the head of the Government (1953-1955) Nikita Khrushchev, the First Secretary, criticized Stalin's agricultural policies. Bulganin replaced Malenkov.

1955, the USSR signed the Warsaw Pact with seven "people's democracies."

4 Nov., 1942: Montgomery breaks through Rommel's defences

8 Nov.: Anglo-American landing in Morocco and in Algeria. Operation Torch

6 June, 1944: D-DAY, Allied landing on the Normandy Coast. Operation Overlord

30 Apr., 1945: the Red Flag waves over the Reichstag.

6 Aug., 1945: The Americans drop the first atomic bomb on Hiroshima.

9 Aug.: second A-bomb obliterates the city of Nagasaki. 14 Aug.: the Japanese surrender

2 Sep.: Japanese surrender signed aboard the battleship Missouri.

1945-1947: The western powers return 2,000,000 Soviet political refugees to the USSR.

May, 1946. Churchill refers to the "iron curtain" which has come down in Europe.

1950-1953: Korean War.

1957 the novel *Doctor Zhivago*, by Boris Pasternak, is published in Italy



14-25, February, 1956. At the XXth Party Congress, Khrushchev denounced Stalin's failures and crimes.

September, 1956: First flight of a Soviet-made civilian jet airliner (TU-104) in the USSR.

November 4, 1956: Intervention of armed troops in Budapest.

October 4, 1957: To the astonishment of the whole world, the Soviets (Korolev) launched the first artificial satellite into Space: **Sputnik**.

December 5, 1957: launch of the "Lenin," the first nuclear-powered icebreaker.

1958: Nikita Khrushchev succeeded Bulganin as Chairman of the Council of Ministers of the USSR. He remained in power until 1964. This was the real beginning of destalinisation, re-equipping of the kol khoz (agricultural communes); large-scale clearing virgin lands and creation of sovnarkhoz, suspension of military tests, in-depth revitalization of industry. With Khrushchev the USSR seems to have taken a new, more dynamic lease on life.

**On 12 April, 1961, flight of Yuri Gagarin, first man in Space.**

In June, summit meeting between Chairman Khrushchev and President Kennedy in Vienna.

Oct. Nov. 1962, Cuban missile crisis

**On May 16, 1963, flight of Valentina Tereshkova, first woman in Space.**

Khrushchev was blamed for his agricultural failures, (for the first time the USSR bought wheat from abroad) but also the failure of his policy toward China. Moreover, the Generals were afraid that with "détente" the budgets allocated for the military will shrink, and began to be involved with plots that would accelerate Khrushchev's fall. 1964 - Khrushchev, removed from power, was replaced by Brezhnev and Kosygin, who began new agricultural reforms as well as in-depth reforms of industry by increasing the power of the administrators.

**18 March, 1965, flight of Alexei Leonov, the first human being in Space to venture outside his spacecraft.**

March, 1966 the XXIIIth Party Congress confirmed the politics of the leaders.

June, 1967, summit meeting between Chairman Kosygin and President Johnson in Glassboro, New Jersey (USA). 20 August, 1968, Warsaw Pact troops intervened in Czechoslovakia.

May, 1972, President Nixon in Moscow:

"SALT" (Strategic Arms Limitation Treaty) Agreements between the USSR/USA.

In February, 1974, Solzhenitsin exiled from the USSR.

1976 Bread shortages all over the country. The Moscow "administrators" harvest 140 million tons of wheat instead of the forecast 220 million.

1977-1982: Brezhnev in power. He died 10 November, 1982.

1979: Armed intervention in Afghanistan. The Red Army was deeply mired down.

1983-1984: Andropov.

1 September, 1984, the Soviet Air Force shot down a South Korean civilian airliner.

1984-1985. Constantin Chernenko elected Party General Secretary, then President of the Supreme Soviet. He was the last "Tzar" of the Communist empire. Under his administration disasters accumulated (Severomorsk base: Siberian defense factory), demonstrating the ineffectiveness of the Soviet system and showing the world a country on the edge of disaster.

1985. Mikhail Gorbachev in power.

His first act was to take measures against alcoholism, a real Russian plague, immediately making him unpopular. He implemented reorganization (perestroika), reforms focused on greater economic efficiency through institutional democratization.

5 October, 1985 Gorbachev in Paris.

20 November, summit meeting between Chairman Gorbachev and President Reagan in Geneva.

26 April, 1986: Catastrophe at the nuclear power plant in Chernobyl, Ukraine.

1987: The USSR signed with the USA an agreement to eliminate intermediate-range missiles in Europe.

1989: Withdrawal of Soviet troops from Afghanistan (the Russian "Vietnam.") First free election with multiple candidates. Developing nationalist demands in the Baltic States and in the Caucasus. The Central Authority no longer opposed evolution toward democracy in Eastern Europe. The system began to crack open.

1990: The Party's role as the directing force abolished. Mr Gorbachev elected President of the Federation. The USSR accepted the reunification of Germany.

1990-1991: Economic disorganization, tensions between the central government and the federal republics threatened the survival of the union. A serious attempted "coup d'état" against Mr. Gorbachev thwarted, partially due to popular resistance galvanized by Boris Yeltsin.

The Baltic States regained their independence. This was the end. The USSR was dissolved in December. Mikhail Gorbachev resigned. The primary republics: Russia, Ukraine, Belarussia, Moldavia, the Republic of Central Asia and the Caucasus (with the exception of Georgia) created the Community of Independent States ( CIS ).

1958 Universal Exposition and Fair of Brussels. The USSR is recognized for its achievements in Optics and in Space.

1958 NASA is founded in the USA.

13 Aug., 1961: the DDR (East Germany) begins the construction of a "wall" around West Berlin. Length: more than 180km (110mi); ht: 3.50m(11.5ft.). Out of 81 passages between East and West Berlin, 69 are closed.

5 May, 1961: Alan Shepard is the first American in Space.

22 Nov., 1963: President John F. Kennedy is assassinated

1963-1975 Vietnam War

16 Jan., 1969: Jan Palach, a Czech student, commits suicide by immolation to protest Soviet occupation of Prague.

21 Jul.: Neil Armstrong is the first man to stand on the Moon.

15 Aug., 1975: Apollo-Soyuz flights are launched.

Nov., 1989 Berlin Wall is destroyed



## СОЮЗ СОВЕТСКИХ СОЦИАЛИСТИЧЕСКИХ РЕПУБЛИК

## SOYUZ SOVIETSKIKH SOTSIALISTICHESKIKH RESPUBLIK

## U.S.S.R

From 1922 to 1992 the USSR comprised 15 republics : Russia (R.S.F.S.R), Ukraine, Belorussia, Armenia, Azerbaijan, Georgia, Turkmenistan, Uzbekistan, Tadjikistan, Kazakhstan, Kirghizia, Estonia, Lithuania, Latvia, and Moldova.

In 1988, with 22,400,000 sq km (8,600,000 sq mi) on 11 time zones, the USSR was a veritable ethnic mosaic, with a total population of approximately 280 million inhabitants.



Order of Lenin and Order of the Red Flag of Labor

- 1861 Emancipation of serfs by Alexandre II. 1864 Assassination of Alexander II. ALEXANDER III (1845-1895), then NICOLAS II (1868-1918)
- 1905 May: Defeat of Russian navy against Japanese at Tsushima. Abortive revolution broke out in Moscow, St Petersburg and in Black Sea fleet. (Potemkin)
- 1914 First World War 19 July : Germany declares war.
- 1917 February Revolution - March: Fakk of the Monarchy  
October: Bolshevik Revolution .
- 1918 1918-1922: Civil war. January: Creation of Red Army by Trotsky.
- 1919 27 August: Nationalisation of all optical -mechanical works.
- 1922 December: 10th Soviet Congress : Fondation of RSFSR (then USSR)
- 1924 21 January: Death of Vladimir Ilitch Oulianov better know as Lenin.
- 1925
- 1927 Collectivisation of agriculture: " The Great Turning Point"
- 1928
- 1929 February: Expulsion of Trotsky.
- 1930 Compulsory Primary School education.
- 1932
- 1933
- 1934 The NKVD replaces OGPU, and obtains total authority over the work camps and institutions of collective works. (FED et GOMZ)
- 1935 First "Great Process".
- 1937 1937-1938, Political "Purges" (20 million interned in camps, the majority having held administrative and technical positions).
- 1938 July: Japanese aggression rebuffed close tu Lake Khassan.
- 1939 August: German-Soviet non-aggression pact: secret talks led to the Baltic countries passing under Soviet influence  
September: The Red Army invades Poland.  
Occupation of the Baltic countries by the Red Army.
- 1940 22 June: Invasion of the URSS by Nazi Germany
- 1941 8 September: Start of the siege of Leningrad.  
November: Battle of Moscow.
- 1942 November: Battle of Stalingrad.
- 1943 31 January: Defeat of the Germans at Stalingrad.  
23 August: Retreat of German troops from Kharkov.  
6 November: Retreat of German troops from Kiev.
- 1945 May: Surrender of Nazi Germany: The Second World War has caused more than 27 million deaths in the USSR.
- 6 and 9 August: Atonic bomb on Hiroshima and Nagasaki.
- 1946
- 1947
- 1948
- 1949 First nuclear explosion in the USSR.
- 1950 Korean War
- 1951
- 1952
- 1953 5 March: Death of Stalin. Explosion of the first Soviet H bomb.
- 1955
- 1956 XXth Congress of Soviet Communist Party. October: Revolt in Budapest, (HU).
- 1957 4 October: Launch of first artificial satellite : Sputnik.
- 1958 Brussels Universal Exhibition. Pavilion of the USSR...
- 1960
- 1961 12 April: Flight of Yuri Gagarin, First Man in space.
- 1962 October: "Cuban missile crisis"
- 1964 Fall of Nikita S. Khrushchev. (in power between 1963 and 1964)
- 1965
- 1967
- 1968 August: Invasion of Czechoslovakia - Prague.
- 1973
- 1979 Invasion of Afghanistan.
- 1985 Michail S. Gorbatchev in power. "Pérestroïka" period (1985-1987)
- 1989 Fev. Withdrawal of S. troops from Afghanistan.  
Nov. Fall of " Berlin Wall" ...
- 1990 12 June : Independance of Russian Federation....( Rossûskaya Federatsiya)
- 1991 August "Putsch". December: resignation of Michail S. Gorbatchev.  
December. Dissolution of URSS.

creation of  
work communes  
-Makarenko-  
Creation  
of FED  
29 dec 1927

March 21  
Dec. 27  
N.E.P

1928-32  
First  
Five-Year  
Plan

1933-37  
Second  
Five-Year  
Plan

1938-41  
Third  
Five-Year  
Plan.  
(stopped by  
the war)

1941-42:  
1360 large  
industrial  
enterprises  
moved  
to the Ural  
and to Siberia

Dismantling of  
German factories

Recovery  
of equipment  
and engineers as  
part of the  
"spoils of war"

4th  
P  
L  
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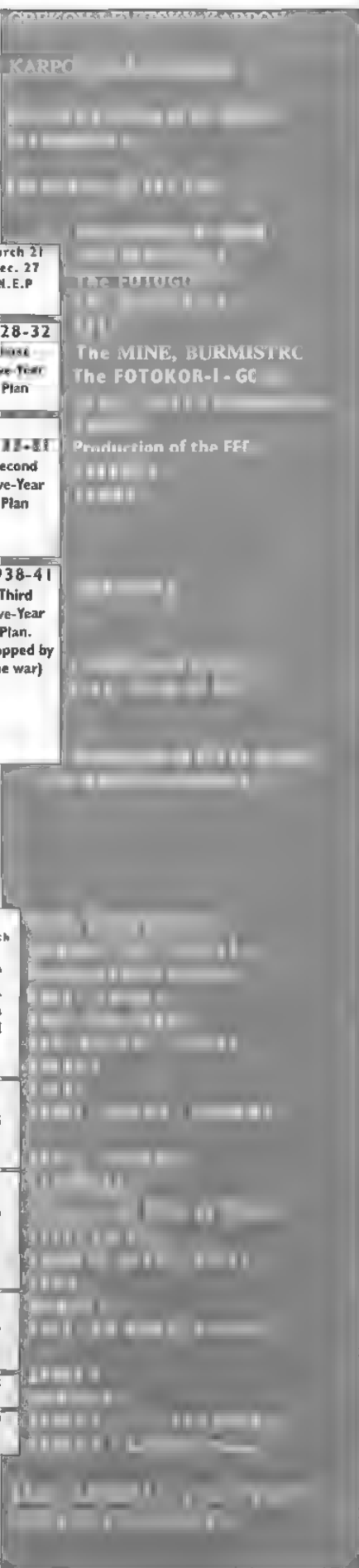
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9





# COMPARISON : INTRODUCTION OF SOVIET AND FOREIGN CAMERAS

	GOMZ	FED	ESTE-ARFO	ARSENAL	MMZ	Non-USSR
1925	<u>FOTOGOZ</u>					LEICA-I
1928						
1929			EFTE			ROLLEIFLEX
1930	FOTOKOR					
1932	VOOMP-1		ARFO			LEICA-II, CONTAX I
1933		FED				BRILLANT, MAKINA II
1934	<u>GELVETA</u>	FED-1				ROBOT-I, RETINA-I
1935						CANON, SIDA
1936	<u>SPORT</u>					CONTAX II - Kine EXAKTA
1937	LILIPUT					PRAKTIFLEX - MINOX
1938						
1939	REPORTER					
--	FS2					DUFLEX
1944			FS-2 KMZ			
1946	KOMSOMOLETS		MOSKVA-1			
1947				KIEV-CONTAX		
1948			FED-ZORKI			HASSELBLAD 1600F
1949	LUBITEL	<u>TSVVS</u>	ZORKI			POLAROID - RECTAFLEX
1950				KIEV II		KONAN-16 - CONTAX IIa
1951			ZORKI-3			CONTAX IIIa
1952	SMENA - MOMENT		ZENIT	KIEV III		HASSELBLAD 1000F
1953	GOI		ZENIT-S			Z.I. CONTAFLEX
1954						LEICA M3
1955	SPUTNIK	FED-2				
1956	<u>LENINGRAD</u>		ZORKI-4			PRAKTISIX
1957	<u>JUNOST</u>		<u>KOMETA</u>	SALYUT	<u>SMENA</u>	MINOLTA-16 - HASSELBLAD 500C
1958	VYMPER		START - ZORKI-5			
1959		ZARIA	IONKOR		<u>ESTAFETA</u>	NIKON F - BESSAMATIC
1960	COMPACTA		ISKRA	VEGA	RASSVET	OLYMPUS Auto Eye
1961	SMENA-5		<u>NARCISS</u>		SMENA-M	RICOH Auto 35V
1962				VEGA-2	VESNA - SHKOLNIK	
1963				<i>KIEV 4 TTL</i>		TOPCON RE Super
1964	<u>VOSKHOD</u>	FED 10	ZORKI 10- ZENIT 6		<u>ORION KM</u>	
1965				<u>KIEV 10</u>	<u>CHAİKA</u>	
1966				KIEV 5		CANON FT QL
1967		FED 11	<u>HORIZON</u>		<u>CHAİKA II</u>	KONICA Autoreflex
1968	<u>SELENA - SOKOL</u>	FED Micron	ZENIT E			
1969	SMENA 8		FOTON			PRAKTICA LLC
1970			ZENIT 70		SILUET	CANON F1
1971				KIEV 6C	CHAİKA III	NIKON F2
1972				SALYUT S	CHAİKA IIM	LEICA M5
1973			ZENIT 16		ZENIT E	
1974				KIEV 15	VILIA Auto	
1975	LOMO 135V			KIEV 30		
1976					ORION EE	
1977		FED 5	ZENIT TTL	KIEV 17		HASSELBLAD 2000FC
1978		FED Micron 2		KIEV 6C TTL		CANON A1 - MINOX LX
1979	ALMAZ		ZENIT 19			
1980	ELECTRO 112			KIEV 80		
1981			ZENIT ET			
1982						
1983	LOMO COMPACT			KIEV 88 - 17M	ELIKON 35S	NIKON FA
1984		FED 35	ZENIT Automat		<u>AGAT</u>	MINOLTA 7000
1985				KIEV 19		
1986		FED 50			ELIKON Autofocus	
1987						
1988		<u>FED STEREO</u>				
1989			<u>HORIZON 202</u>			
1990						
1993			<i>HORIZON 205PC</i>			

Names underlined : Wholly original cameras - Names in Italics: Cameras which were not mass produced .

# Photography in Russia in the 19th century

Nicéphore Niepce's invention was announced by ARAGO to the Academy of Science in Paris on August 19th, 1839. Researchers and those simply curious immediately began working on this new science and brought to it, throughout the 19th century, numerous decisive improvements. In western Europe, the USA and Russia they forge the tools of this means of communication without which the 20th century would not be the one we know: PHOTOGRAPHY.

According to A. A. SYROV (2), B. S. Yakobi (4b), member of the Academy of Sciences of St. Petersburg, discovered galvanoplastia, a technique by which images in "relief" are formed on a metal plate by electrolysis, in 1836.

The method of silver-plating copper plates by galvanoplastia, used simultaneously by GREKOV in Russia and FIZEAU in France, proved to be an improvement over the daguerreotype process.

However, tsarist Russia, while a leading European power, was quite under-industrialized in the middle of the 19th century. As with many manufactured products, photographic cameras, quite in vogue among the aristocrats and the wealthy bourgeoisie, had to be imported, at the rate of more than 25,000 annually between 1890 and the beginning of the war.

This led many "resellers" of these imported products, often photographers themselves, to try to have their own cameras, often with some innovative modifications, made in Russia for their own use and for resale.

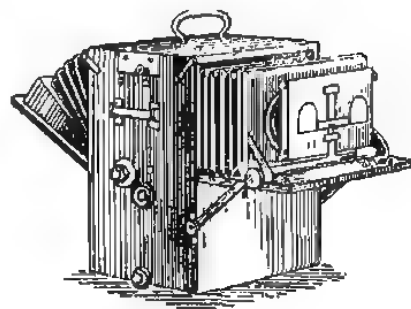
A. F. GREKOV, engraver and inventor, is reputed to have been the first to make in his own workshops as early as 1840 a few sliding box cameras for daguerreotypes and developing equipment. (3) (see sidebar p. 17)

Following chronologically S. L. LEVITSKY (1819 - 1898), considered the patriarch of Russian photography, began work. He was also a pioneer of portrait photography in Russia. (see the text from the Photographic Annual, 1892 on page 7.) Levitsky owes his celebrity to some other technical innovations (4) and especially to a major advance: the adaptation of an accordion bellows to a sliding frame camera, thus creating the bellows type camera. (!!!)

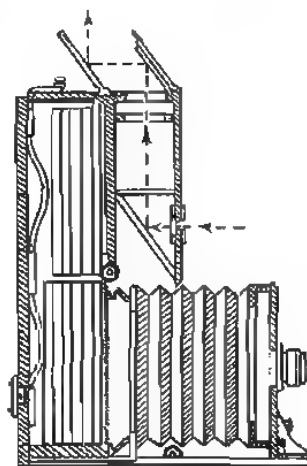
At the same period around 1854, I. F. ALEXANDROVSKY, leader of a painter's studio, presented a sliding frame stereo camera: "two images by a single machine..." (Journal of Manufacturing and Commerce T.3 1858) Focusing was done on a ground glass by sliding the lens standard in and out.

In the '70's D. P. EZOUTCHEVSKY created several original cameras and accessories. Among these was a quick-loading camera making 85x85mm stereo pairs on glass plates. It also featured interchangeable lenses mounted on lensboards which are attached by a bellows to the body. This camera received the Bronze Medal at the Paris Photographic Exposition in 1878. In 1896 a new bellows camera, the SPUTNIK (traveling companion), with a gravity feed system for 15 plates, was introduced. It also featured a clever mirror reflex system with chest level viewing, and attracted great interest. (see sketch opposite.)

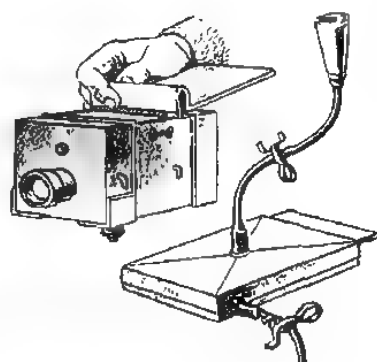
His widow, Mrs. A. EZOUTCHEVSKAYA continued her late husband's work and obtained Privileges (5) #5713 and #5729 in 1901.



Stereo camera by D.P. EZOUTCHEVSKY  
Document from SYROV.



Reflex camera by D.P. EZOUTCHEVSKY  
Document from SYROV



Traveling outfit by PHILIPENKO  
Document from SYROV

## In the time of the Daguerreotype (1841-1850) by S. L. Levitsky

Original text by S. L. Levitsky, which appeared in the 1892 "Annuaire photographique"

On Count Gregorivitch Stroganov's recommendation I was hired directly into the Chancellery of the Minister of the Interior as assistant to the head of the Cabinet. In the beginning the job pleased me; I was on of the most careful of the functionaries. In spite of this, I devoted all my free time to my passion: galvanization, galvanoplasty, and especially, making Daguerreotypes.

The first daguerreotype camera appeared for sale in Moscow at the "Vokerg" shop. It was a series of huge black wooden boxes of which one, with a ground glass, was the camera, the second served for iodization, and the third for the mercury vapor. These elements were crudely assembled and of course, one could not expect, or indeed, require, great results from such an assembly.

And this, despite an attached paper on which was printed some vague, illiterate instructions. Its price was 25 Rubles in scrip.

It turns out that Vokerg was a pure Russian from Moscow who had inverted his name - GREKOV - so that it became VOKERG. He had done this to attract more clients to the foreign-sounding name.

At that time, many aristocrats in St. Petersburg ordered their daguerreotype cameras directly from Paris, considering these to be novelties which would interest everybody. The most passionate of these was Count Alexis Bobrinsky, followed by Prince Serge Sergueivitch Gagarin, Prince Gruzinsky, and so forth.

Without doubt it was Bobrinsky who got the best results; he took a very successful shot of his winter garden, which was presented to Tsarina Alexandra.

I finally left for Paris, leaving the capital of the Arts for the capital of Science, the goal of my trip.

In 1845 Paris was not the remarkable, brilliant, and rich city that we now know. It had a much more serious, morose aspect; there was no noise, nor the wild traffic, the hurly-burly, the clamor, the crack of whips....

With great fervor I searched out the Sorbonne in the Latin Quarter, grand in its medieval simplicity.

The following day I signed up for chemistry courses with Dumas, physics with Déprés. During the first month I had already befriended everybody involved with the Daguerreotype movement. I first went to see Charles Chevalier to show him some of my results from Italy,

made with a lens bought from him.

In Charles Chevalier I found a man of great charm, surrounded by microscopes, optical instruments, and lenses which he was proud to have conceived and the construction of which he contested with Petzval. In impassioned French he continually repeated, "Those Germans stick their noses into everything," even though a completely new lens had been created [by them] having no common formula with Chevalier's own combination of elements.

I also met Mr. Valincourt, author of the first manual of daguerreotype imaging, who was working on a series of similar manuals, edited by Encyclopedia Poret,

covering different specialties.

In Chevalier's workshops were gathered almost every morning all the practitioners of daguerreotype imaging, Dr. Faux, Edmond Baco, Fiso (Fizeau), sometimes Daguerre himself, Baron Gros (one of the best daguerreotypists), then Baier, Ambassador to Venice who made paper photographs almost before Talbot, finally Meunier, professor of Chemistry in Marseilles.

At that time "daguerreotype imaging" was limited to the Royal Palace and the surrounding streets. The shops of the royal Palace were, for the most part, restaurants, jewelers, and opticians. Chevalier's boutique was there but his workshop and offices were located at Fontaine Court. The best daguerreotypists were the opticians Valia, Sabatier, Legros, and Depussier. The public preferred Valia.

"Annuaire photographique 1892"



Toward the end of the "70's" the collodion technique of photosensitive plates gave place to the bromide gelatin process, greatly enlarging the circle of potential users. This era is also characterized by the development of many new cameras.

Thus in 1877 (or 1875?) **Leon VARNERKE** developed for a bellows camera a magazine for paper-backed film.

In 1885 Artillery Lt. Col. **I.I. PHILIPENKO** was granted Privilege #6959 for a traveling photographic camera, complete with mobile developing equipment. The outfit was contained in a steamer trunk.

**V.I. SREZNIEVSKY** constructed a traveling camera using 3"x2 1/4" plate for explorer **N.M. PRZEWALSKY** to use on an expedition to Tibet. The outfit weighed 4,5kg (10 lbs) with 30 plates.

In 1886 he created a special camera for the Imperial Navy.

**K. BRANDEL**, the photographer at the University of Warsaw (6) received Privilege #11515 in 1889 for a photographic pistol making papers negatives.

At the turn of the century, the workshops of retired Captain **I.I. KARPOV**, in association with **AKSAKOV** and **REIS**, are quite productive. Around 1890, they make for **V.I. KURDIUMOV** a metal and wood box camera featuring a lens eccentrically mounted on a rotating standard, which could be rotated to take two successive views 6x9cm, or 4 successive views 4,5x6cm on a 9x12cm plate. (7)

In the same year, **N.N. APOSTOLI**, with **KARPOV** and associates, made several copies of a dual bellows double view camera. The upper half was used for viewing and focusing, while the lower part comprised a classic camera. Some models were even equipped with double extension bellows and tilting lens standards. (8)

During the second half of the nineties, **I.I. KARPOV** himself showed a significant number of cameras. In 1896, at the Industrial Exposition of Nizhny-Novgorod, then in Moscow at an exposition organized by the Russian Photographic Society, **I.I. KARPOV** presented a "reflex" camera in 9x12cm or 13x18cm formats.

He also shows a stereo (or "photo-jumelle") camera called "RUSSIA" for 36 plates 4.5x6cm;

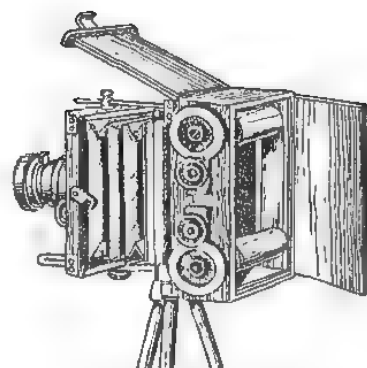
A detective camera for 48 plates 9x12cm with a focal plane shutter with several speeds, also called the "RUSSIA." (9)

- Also in 1896 Karpov receives the Gold Medal for a vertical twin-lens reflex camera using a bellows focusing mechanism, taking 9x12cm plates. It is called the "Universal." The upper chamber is for focusing, the lower for taking the photo.

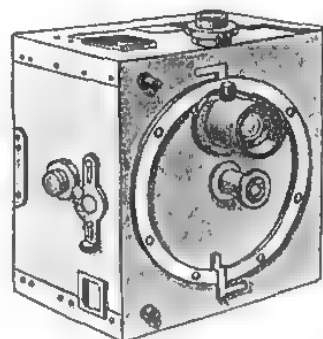
- Both chambers are equipped with multi-speed focal plane shutters allowing the camera to be converted into a stereo camera. The same camera was available in 12x16.5cm size. (10)

- Several other standard view cameras in 13x18cm and 18x24cm also bear Karpov's marque. (The author has seen an 18x24cm camera at an "antique shop" along the Arbat in Moscow, bearing a plaque "I. I. KARPOFF" inscribed originally in Roman letters.)

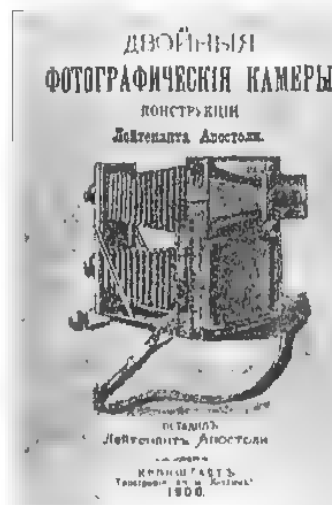
-in 1897 Karpov receives Privilege no. 218 for a mechanism allowing automatic plate changes in a reflex camera.



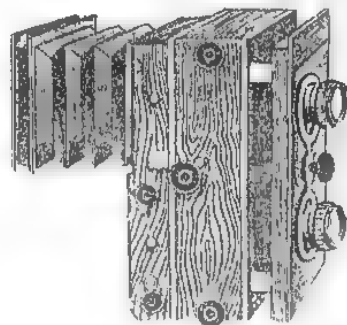
**VARNERKE's view camera, c 1877**  
Document from SYROV.



**KURDIUMOV's traveling camera, made in the Karpov workshop - Document from SYROV**



**N. N. APOSTOLI's double view camera, made in the Karpov workshop**  
Document from SYROV.



**KARPOV's "Universal," c. 1896**  
Document from SYROV.



## KARPOV'S BOX STEREO

The camera illustrated opposite has the same identification plate as the one described previously: "I. I. KARPOV, Nevsky 60."

This is a stereo box camera taking 9x9cm pairs on rollfilm, Kodak type.

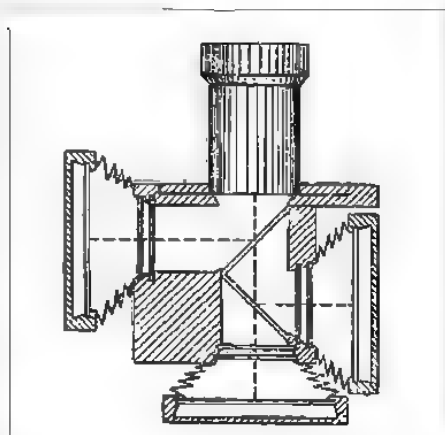
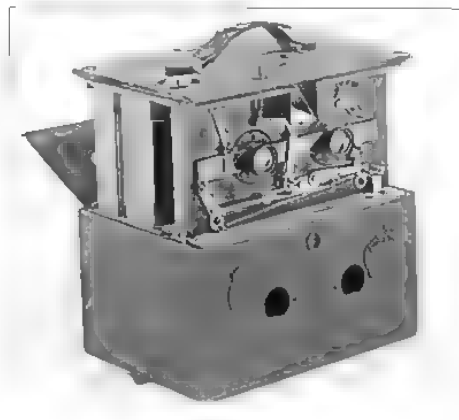
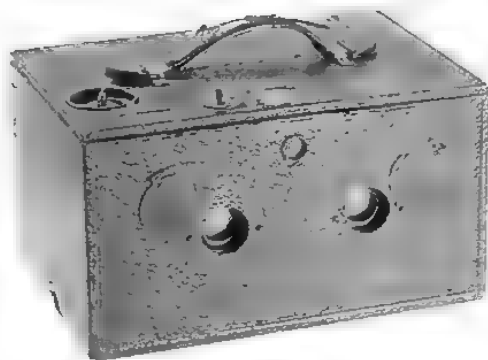
The mechanism is inspired by Ememann's Stereoskop (9x9cm pairs on plates) and also by the 1901 Eastman Stereo Kodak # 2 (9x9cm pairs on rollfilm #101)(11) which inspired the general appearance, the sliding nested opening feature, and the film gate. (The opening key is located on the front on the Kodak, on the camera's side on the Karpov)

- Wooden body with black moleskin covering
- Handle on top of the camera. simple central reflex viewer.
- On the front, two rotating protective lens caps.
- Guillotine shutter with one speed. Push-button cocking mechanism.
- Shutter release button, to the right of the viewer in the photo, with the labels "M" (Moment) and "Z" (Zeit - time.)
- The two lenses, two-elements, approximately 125mm focal length, with 76mm lateral spacing.
- Sliding diaphragm stops (3-6-9)
- Camera body in varnished pear wood

The totality of the body and mechanical elements is superbly finished.

Number 31218 is embossed inside the camera body, the letters "PG" in roman letters are embossed on the inside front plate housing the shutter mechanism.

Dimensions, 212 x 125 x 150mm

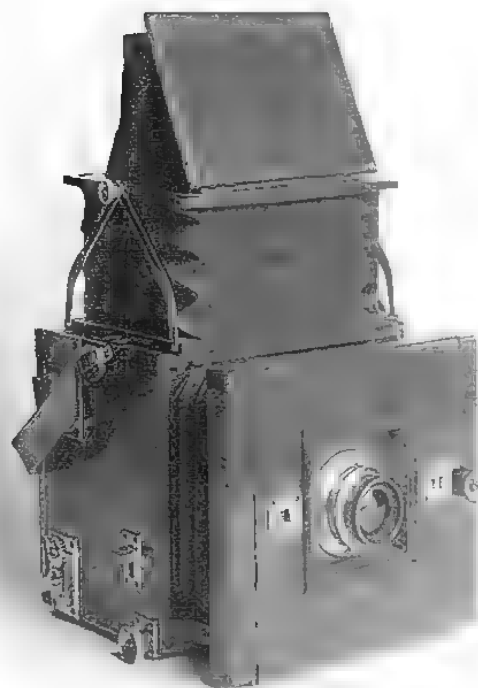


KOZLOVSKY's  
Trichrome camera  
Dor. SIROV

In 1899 E. Kozlovsky receives Privilege # 2661 for a trichrome camera (12) consisting of a combination of three chambers and a single lens. The image is split into its three component colors by two mirrors. Three color plates, located in front of the film planes, filter the light by the subtractive process.

A second project, allowing a reduction in the size of the camera, used a lens divided into a single frontal lens group and three rear groups placed in front of the film planes.

Around 1890 I. Yanovsky worked on views of animals and objects in movement, in parallel with several western photographers. He uses the CHRONO-CAMERA and the STEREOKINETOSCOPE.

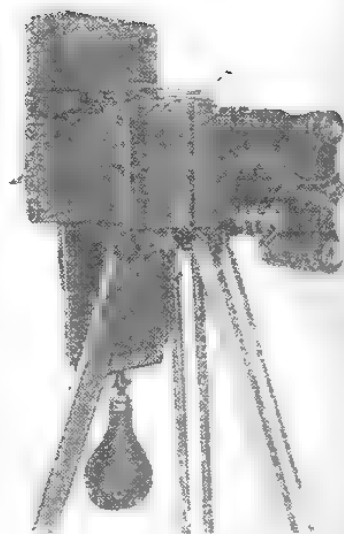


Karpov's reflex camera  
Photo Bernard Davenberg

Several cameras intended for military use are also developed around the end of the century, many by inventors who are career military personnel.

- a camera with a very long focal length lens designed in 1888 by MENDELEYEV for the Imperial Navy

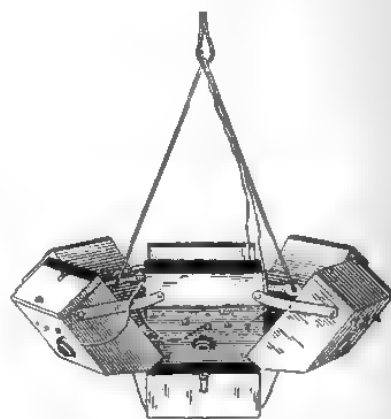
- the "Razvedchik" (Scout), designed by V. F. GELGAR is a rigid camera, of which the lens could also be equipped with a pair of binoculars. Specially conceived for taking pictures from a air balloon, this camera was equipped with a rapid developing tank and other accessories which allowed a print to be made in just a few minutes. Equipped with a compass and a panoramic head, the Razvedchik was also set up to make panoramic view (*from a balloon!!!*). A further development of this camera allowed its use in airplanes. readings from the levels and the compass are visible in the photo.



**The Razvedchik by V.F. GELGAR**  
*Document from SYROV*

- Conceived in 1890 and realized in experimental form in 1897, R. Y. TILE's extraordinary Multiple Aerial Panoramic camera, the Panoramograph, received its Imperial Privilege (number 9657) in 1904. In reality, this camera comprised 6 rigid parts photographing the 360° of the horizon in 6 views of 60° each, on 14x14cm plaques, at a 30° angle from the horizontal.

A 7th element was placed in the center of the camera, aimed vertically at the ground. The seven shutters were released simultaneously. The Tile Multiple Panoramic was suspended beneath a balloon or even under a kite (!). It was supposedly used by the engineers responsible for the construction of the Imperial Railway system, among others the Trans-Siberian railroad.



**the Panoramograph by R.Y. TILE**  
*Document from SYROV*

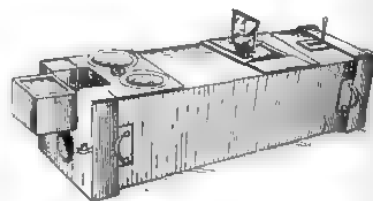
- Also for aerial photography, particularly military:

- a camera created around 1895 by S. A. ULIANIN using a kite cord to set the altitude with the assistance of a ... sail.

- around 1900 ULIANIN also created a 24x30cm box-type camera equipped with a 1000mm lens, an altimeter, and graduated levels; it also included a second camera mounted on a shaft and photographing the horizon.

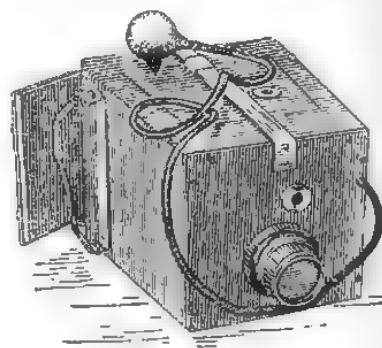
This camera was used in the Russo-Japanese war of 1904-05.

- in 1909 Captain S. Ulianin receives Privilege # 16266 for a camera capable of obtaining photogrammetric data.



**ULIANIN "TELEAPPARAT"**  
**24x30cm plates, 1000mm lens**  
*Document from SYROV*

- Lt. Col. V. F. POTTE receives in 1912 Privilege # 22433 for a box-type camera he had created in 1896, taking 50 views on roll film. It used a sector rotating shutter giving 1/60th sec.(?) and a 4.5/210mm lens. The shutter release took place in synchronization with the movement of the balloon or airplane in which it was mounted. Made in Potte's workshop in KIEV, this camera was used by the army until the 1930's.



**Aerial camera by V.F. POTTE**  
*Document from SYROV*

- Two Privileges, #13183 of 1908 for an underwater camera created by A. LOZAN and #23993 of 1913 for a simple camera designed by a young student in the Math and Sciences program, P. SOKOLOV.

## TRAVELLING CAMERA c1900

Folding traveling camera 13x18cm, #291, mahogany and varnished brass.

Horizontal and vertical shifts on the lensboard.

Reduced axial tilt on the viewing chamber.

Lens in a copper mount, engraved in Roman letters:

*Universal Rapid Aplanat, (Emil Busch) (12b)*

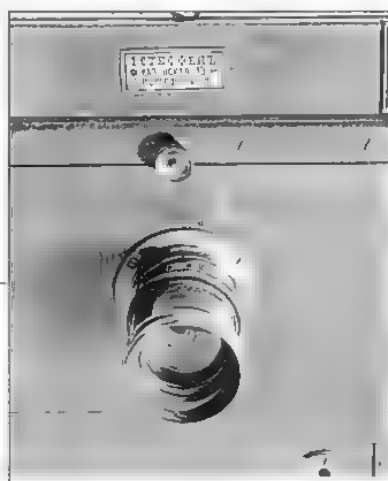
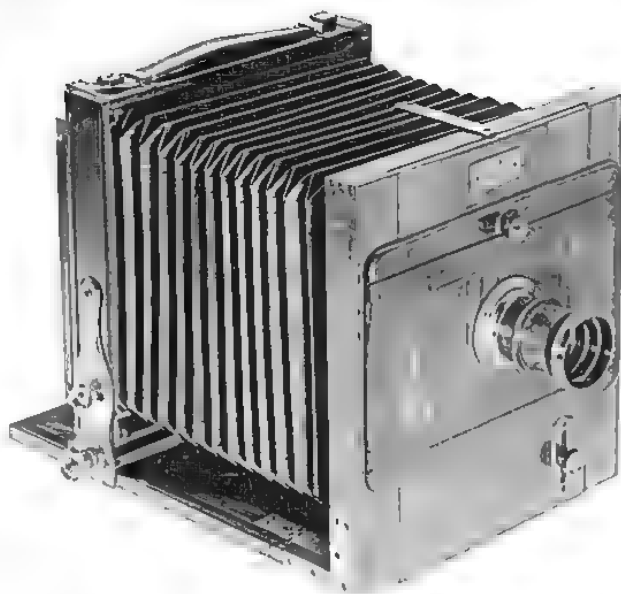
f:8/210mm (approx.)

Iris diaphragm with stops 8-11-16-22-32-44 in the Kodak scale.

This camera is a perfect example of material imported into Russia mostly from Germany.

-merchant's sign plate, engraved in Cyrillic characters

"I. STEFFEN  
KAZANSKAYA 13  
ST. PETERSBURG."



In 1889 I. POLIAKOV, a student engineer at the Moscow Polytechnic Institute, deposited a patent in Germany for a camera with automatic exposure regulation. The shutter was coupled to a selenium cell.

This camera, unfortunately never rediscovered, could well be the **first automatic exposure camera** in the world.

Engineer K. Y. DRATS received Privilege # 10100 in 1905 for an improvement of this camera.

Poliakov, recidivist, received Privilege # 10116 the following year for a selenium photographic lightmeter.

A considerable number of other inventors and their inventions must be attributed to the credit of Russian researchers:

-shutters invented by S. A. YURKOVSKY and I. V. BOLDYREV ;

-A. A. POPOVITSKY's sophisticated optical formulas involving concave mirrors;

-KOVALIEV's tripods and photometers;

-developing equipment, and the like.

*All of these forerunners and photographers, hitherto unknown in the West, are described in "Put'Fotoapparat" by A. A. Syrov (Iskusstvo-Moscow, 1954.) Let us pay homage again here to this great historian who dedicated his life to the study of Soviet photography and without whom a major part of the present work would not have been possible. (cf text of Irina Frolova, pg. II)*



Lens made in Moscow

# The 20th century and photography in USSR

We have seen that in the 19th century Russia produced only a few cameras but that Russian photographers, dealers, and users brought many refinements and improvements of imported equipment into play.

The Moscow Polytechnic Museum has an original heliographic reproductions (which I had the good fortune to admire personally) of "the Cardinal of Amboise," of Nicéphore Niepce, some calotypes of Fox Talbot, another inventor of photography, dating from 1854, several negatives on oiled paper made by A. Richebourg in 1841 and several manuscripts explaining these techniques and their preparations.

The Museum also conserves with great care a huge number of images made by Russian photographers discussed on pages 16/20, including D. Ezouchevski, I. Karpov, I. Philippenko, V. Sreznenski, S. Levitski, M. Dmitriev, A. Kareline, A. Lavrov, N. Svishev-Bolo and the like.

Just as with the masterpieces in the field of painting that have been collected and maintained by the Hermitage Museum in St. Petersburg, these admirable collections of photographic images were maintained by a few royal benefactors starting at the end of the 19th century and continued after the Revolution by the "Permanent Commission attached to the Department of Applied Physics," this proves how much the photographic image has been appreciated both in Russia, and later in the USSR.

The 1917 revolution and the revolutionary period are, by contemporary standards, well "covered" by a number of Russian photographers, most of whom will never be known by name. Beginning in 1924 photography used for documentary as well as doctrinal purposes takes an important place in the lives of the Soviets, even more so than cinema despite the presence of cinematographers such as Eisenstein and Pudovkin.

And the Commissar of Civil Instruction Lunacharski best known for his slogan "The camera is more necessary to the individual [citizen] than his watch, his pen, or his penknife" also coined the phrase "Not everybody goes to the movies, but everyone reads or looks at the newspaper."

Thus photography and cameras become an integral part of the "Piatiletka," as the Five-Year Plans are called, and by extension, Soviet inventions. In this country where private life is replaced by the "collective," photography becomes an integral part of the "communal" life of the Soviet citizens. This is particularly true through the abundantly illustrated "mural newspapers" that covered the walls of factories, barracks, construction sites, collective farms schools and even – particularly – community leisure centers.

This popular means of expression bragged, in an "assembly line" mental approach, about socialist successes and the progress of the plans. These publicly read (and possibly obligatory) sources of information were full of Honor Rolls of Meritorious Workers as well as articles detailing the efforts of the "Shock Brigades" which tirelessly tracked down "deserters" and "defeatists."

The history of the USSR also includes some darker chapters in the field of photography: While retouchers exercised their talents on official pictures from which gradually disappeared certain public figures no longer judged "historic," creative photographers who, like some other writers and poets refused to follow "the movement," were harassed, then arrested, and some even "suppressed."

I was able to discover hundreds of original images by Russian photographers who were "forbidden and disappeared" in the torment of the Stalinist era, thanks to the efforts of Mikhail Golossovski (89), who sometimes risked his life collecting and safekeeping them.

Two "Nudes" in the pictorialist tradition, (see p. 23) particularly moved me because they are the only remaining testimony to the existence, since disavowed, of a talented Soviet photographer whose only error was to be an artist during the somber times of the purges. Even his name is no longer known.

However, even in the blackest countries roses bloom, and several great names in photography illuminate the history of the image in the USSR: Rodchenko and his celebrated "Woman with Leica," Baltermans, deceased in 1992, who gave us "the Attack (1941)," "the Groan" showing a woman discovering the dead body of her husband or son under the snow, and many others.

Today the curiosity of the Russian public does not stop at the country's borders. Names well known in the USA, Europe or Japan are equally familiar in the USSR; Henri Cartier Bresson, Richard Avedon, Ansel Adams, and Helmut

Newton are only a few of the best known.

In the Moscow Polytechnic Museum all the images, whether by Russian or foreign photographers, are exposed and stored with great care, and all the stages of the technical development of photography are described. Photography's history is related through a permanent exposition of cameras which mark the 19th and 20th centuries, from Chevalier's view camera to the Leica Reporter 250, passing naturally by domestic products as well

EFTE, FED, FAG, Sport, Maliutka, Reporter, Fedetta and Smena rub elbows with postwar series, from Zorki to Kiev 88.



**Family of Russian Moujiks  
around the end of the 19th century.**

unknown photographer

The negative of the original photo, unglued from its glass support, was found by the author in 1987 in a Soviet magazine dated 1937



**Portrait of a young girl, pictorialist school  
Collection M I. Golossovski (89)**

I hesitated a long time before making the following decision. There are two articles from 1933 dealing with photography in the USSR, one from "Photograms of the Year" and the second from "Das Photo Jahr." Should I simply publish a digest of these articles, or reproduce them in full? I decided on the latter course since a reduced version – a resume, a condensation, a distillation – would very likely have shown some partiality on my part. Historico-political criticism of the ex-Soviet empire is not, by any stretch of the imagination, the province of the present work. However, present day understanding of the previous seventy years might allow us to bring, as we are inclined to do, some judgments on the history of the USSR. The exact tone of the articles which were reproduced in the "Revue Française de la Photographie et du Cinéma" (French Magazine of Photography and Cinema) in February and April, 1934, takes on full value sixty years later. It is up to us not to forget this.

## Document

### Photography in the USSR

In the USSR, the situation of photography, particularly regarding pictorialism and the amateur, is so different from what one finds elsewhere that before delving into the subject it is necessary to give a short presentation of the special conditions prevailing in the photographic arena.

With the exception of a portion of the negative film used by cinematographic studios, no photographic goods are imported into Russia. In fact, the cameras and their accessories, lenses, chemical products, photosensitive plates and papers used there, are all made in the country itself: this production suffers, furthermore, from difficulties, themselves increasing, that negatively affect this special industry. Moreover, the spirit which animates the national art form, baptized "Socialist realism," has a tendency to categorically discourage any pictorialist effort which does not have a utilitarian goal.

Until the [first] World War Russia possessed in Moscow an eminent photographic group: the "Russian Photo society." After the Revolution several of the Society's members took on the task of its reorganization, but the death, a few years later, of its president brought about the Society's final disappearance. Nevertheless several of the artists trained by the society continued to show their works until 1928.

At the time of the introduction of the first Five Year Plan, the Society of Cultural Relations with the Exterior (VOKS), under whose control would thenceforth be placed the soviet photographic movement, decided that in the future no works other than "Reportage" would be shown outside the country, excluding however, purely pictorialist work which had, for the Society, no "raison d'être." Since that period photographic salons and exhibitions have been suppressed. We must, however, note that a flow of ideas has recently manifested itself, relative to the organization of an annual exposition and even envisaging a great photographic manifestation for the near future under the title "Fifteen Years of Soviet Photography."

The most eminent Russian pictorialists, Jivago, Andreiev, Yeryomin, Grünberg, Ivanoff-Allilouyeff, Oulitine, Shokine et Sternberg, are still active but in other fields: portraits, journalistic photography, and scientific research. Artistic photography is absent in periodicals in the USSR. The reason for this is that magazines are printed on a paper which rejects any sort of high quality pictorial reproduction, to which must be added considerations relative to regulation in the publishing field.

In spite of everything, journalistic photography has today risen to a very high level. With the exception of a few official photographers attached to some of the most important newspapers like Pravda. All its work is produced by a national service known as "Soyuz-Photo." In these papers one finds absolutely no publicity as we know it. This type of photography, elsewhere known as commercial, is channeled

here to shine the spotlight on national holidays and government campaigns. The process used consists especially, in photo-montages whose goal is to grab the reader's attention.

Portrait studios, belonging to various trusts and cooperatives known as "Artels" are quite numerous in Russia. There is no national photographic organization nor professional school in existence, although a recently created group, "the Pan-Russian Society of Workers in Photography," tries to give a few conferences on the basic concepts, as well as to provide some technical consultation for novices. The absence of an overriding photographic "Mother-Society" is partly explained by the fact that professional groups, which are at the center of social activity, are organized along industrial, not professional, lines. The result is that a photographer employed by a paper belongs to the Press Union, while another working in a cinematographic studio is part of the Workers' Union of the Theater and Cinema Arts.

The number of amateur photographers is quite large despite the absence of any public services providing photographic treatment, such as developing and proof printing. There is only one of these, for the exclusive use of foreigners. This forces the amateur to be his own laboratory worker which, we might add, is far from being a bad thing. The cameras constructed in Russia are all plate cameras, mostly in 9x12cm format. While as an import it is "undesirable," the Leica is quite popular. Unfortunately, one finds absolutely no film-packs or rolls of film for this camera.

The most used lenses are Tessar-types, of f:4.5 speed. The first of these were fabricated by the National Soviet Optical Office in 1933. Until very recently the only plates used were orthochromatic with a speed of H&D 170. The quality of these plates was quite variable. We should however mention that 1933 witnessed also the appearance of a modest quantity of H&D 450 plates, both ortho and panchro, not affected by an (anti-halation coating) mask, having good tonal gradation and good shelf life. These are made by the Russian brand "NIFKI" (State Institute for Photographic and Cinematographic Research).

Color photography is the object of a large body of experimental work. Research is oriented either toward bichrome or trichrome separations, executed on negatives. The leading photographic publication is the "Photoproletarian," oriented mostly toward utilitarian photography, but presenting rather advanced technical information.

The result of this exposé is that one may confidently presume that the conditions currently holding back the development of photography in the USSR will soon be improving.

The Second Five Year Plan will increase the encouragement and attention necessary for the fabrication of good photographic equipment and material, while at the same time the political attitude vis-à-vis "art in the service of beauty" will also change.

Mr. Lars MOËN, Moscow. Photograms of the Year 1933



## "The Elimination of Photographic Ignorance in Russia" *Das Photo-Jahr 1933*

A recent article in this magazine about photography in the USSR leaves somewhat in shadow any details about the special organization of Soviet photography. Details will follow later and what we will present, borrowed from a well-documented article in *Photo-Jahr 1933* will fill in the rest. We will see to what extent in that country, even regarding the use of the camera, the [sense of the] collective prevails over individual effort which is one of the joys and, we might mention, necessities of our national spirit. (*In the original French text*).

Russia is the country of predilection of photography and is, assuredly, one of the countries where the power of propaganda is recognized at its full value.

On this topic, the late Minister Lunatcharski, People's Commissar of Popular Instruction, formulated his thoughts as follows: "Civilized man must know how to use a camera as often and as precisely as he uses a watch to know what time it is. Everyone in the USSR must possess not only general training, but specific training in photography, and we must march forward at top speed toward this end."

In fact, over the last four years Russia has taken a mighty step forward: it makes its own equipment, and photography annexed to the state is finally governed by a method and with an order which produce surprising results. Here we give the floor to a *Photo-Jahr* correspondent who is remarkably well-informed about this subject in the Soviet Union.

Photography is recognized officially in the USSR as an indispensable tool for everything that involves not only science and technology, but other aspects of economic, political and cultural life. It is systematically integrated into the development of the five Year Plan. The result of these premises is that photography has great prospects for the future, as well as intervening in all elements of publicity, however small.

Blended intimately into daily life, photography has moved out of the narrow province of the specialization of the laboratory, the exclusivity of small artistic "chapels", the ridiculous petty bourgeois spirit of pure amateurism, and is now launched forward in a broad movement, tightly associated with the press and the entire intellectual culture of the country.

the "elimination of photographic ignorance" and the total "photographication" of the country have become necessities.

One of the first obstacles to be overturned was the retarded state of the related industries: "old Russia" not possessing a single manufacture of cameras, was reduced to dependence on foreign supply, as with the chemical products of which there was no local manufacturer.

As a result the beginning was very harsh. Russia necessarily had to depend on imports initially; lately all that has changed.

First, they had to find funding; the council of the Peoples'

Commissars found some by starting a State Photographic Loan. To allow the working population to obtain cameras, and to create the infrastructure of everything that photography entails (cameras and accessories), the "Pan-Russian trust for the Opto-Mechanical Industry" was authorized to issue photographic shares, authorizing each participant to receive "a modern camera with a full set of accessories." (a 9x12cm plate camera, featuring a double extension bellows, an f4.5 anastigmat lens, a three speed shutter [1/25, 1/50, 1/100 s.]

Between July 01, 1932 and December 31, 1933, 400,000 bonds were issued in seven series, with dividends comprising the delivery of the camera. Furthermore, information on the present and future deliveries of the cameras and on the development of related national industries was given, along with graphic and statistical proof, in the second "Piatiletka," or Five Year Plan. Today, Russia has become independent of foreign supply for photographic equipment, including some of the essential elements such as shutters, specialized raw materials such as bellows leather, and lenses, all of which are now made in Russia

... Add to the list hydroquinone which was, until 1932, imported. And not only is this result attained, but every effort is being made to gradually increase the quantity and quality of the national production, while diminishing the cost. And let us add that the Photo-Kino Chemical Trust (FKCHT) is the premier producer of [photo-]sensitive articles whose tonnage in 1931 already largely exceeded the output of the entire Russian industry prewar.

The manufacture of cameras is split among several firms. GOMZ in Leningrad assures the opto-mechanical production, and has assembly line production of the majority of the black plate cameras we just discussed: the celebrated FOTOKORS N° 1 (9x12cm.) In 1932, the year of the Photographic bond issue, GOMZ produced 30,000 Fotokors (with Compur shutters.) The total figure of cameras constructed for both the Pan-Russian Trust and other outlets, exceeds by 92,000 the number of cameras imported during the preceding period. Half of these are the cameras already described, while the other half is comprised of a simpler 9x12cm camera with single extension bellows, a Periskop lens in a Vario shutter, under the brand EFTE.

Finally, the Moscow workshop known as "Problem" produced, in 1931 and '32 35,000 camera bodies in 6.5x9cm format without bellows, at a very modest price. Let us wrap up this discussion by saying that at the beginning of 1932, Russia produced roughly 135,000 cameras, to which must be added 20,000 more imported after the revolution. Comparing these figures with current capacity for the Soviet photographic industry, estimated at 200,000 cameras per year, and if one considers the enormous activity which the younger generation will bring to the effort, one can easily conceive that "photographication" will in fact become the appropriate term for the USSR.

In 1931 There was one camera per 930 inhabitants in Russia; in 1932, one for every 615. While these figures are far from those of Belgium, the country with the highest density of cameras, (with 1 for every 40 inhabitants) the acceleration of Soviet production very impressively reveals the results obtained. By the end of the second Five Year Plan [1937, author's note] the figure in Russia will be one camera for every 200 inhabitants.

In parallel with large series production and in the same workshops, small quantities of selected cameras are also made. The firm Kino Fabrik Ukrain Film in Kiev is a particular specialist in this domain. its production in 1931 was 3000 Nettel-Klapp [folding] cameras and 2000 reflex cameras. The 1932 production program was for 50,000 "PIONEER" reflex cameras (see pg. 85)

Prices for these cameras are as follows: the Fotokors 1 costs around 200 rubles, while the cameras without bellows in 6.5 x 9cm cost 12 rubles. With its shutter, the lens for the 9x12cm format costs around 50 rubles. Let us note that the average monthly salary of a non-specialized worker is 250 rubles, [It was still 250 rubles per month in 1985. author's note.] and that the photographic bond issue pays small dividends paid into the savings accounts of the subscribers.

The activity that these camera users engage in is enormous. This is understandable since photography is used for all problems and studies relative to the industrialization and the technology of farm and factory, as well as the enlightenment of issues economic and cultural. The camera is the arm which, in the hands of worker and farm-hand "reporters," is employed in the full sense of the term in the reconstruction of the country.

Photographic illustration in the popular press, in regional papers, in the mural news organs one sees in factories and villages, in magazines and in the huge domain of publicity tracts, serves diverse ends, among which are the dissemination and explanation of progress, technical acquisitions and work methods. It is also aimed at designating, for the admiration and emulation of the everyone, the meritorious actions of some workers, farmhands, technicians and economists, as well as to sternly underscore the errors and defects of others.

Photographic groups united by the "Pan Russian Union Sovietfels" are in intimate contact with the training departments of factories or workshops, and with the press and various editorial offices.

One journal, FOTO, appears every ten days (3.60 rubles for a year's subscription) while a monthly, PROLETARSKOE FOTO (Proletarian Photo), costs 7 rubles per year. Both do their best to accelerate the Soviet photographic movement. They have taken on the further mission of offering technical advice, and of illustrating and explaining all the novelties which are introduced for the darkroom, both domestically and abroad.

The primary format for organizing and instructing reporters and photographic correspondents is as follows: every amateur must belong to the Brigade, created in each factory and village, to take care of publicity and training, or to the Red Army Journal, which remains in constant touch with the correspondents of the various

Journals of Workers and Farmhands.

The political and organizational production of the Worker and Farmhand correspondents is run by the corporate journal, "Workers' and Farmhands' Correspondent" which is itself directed by Pravda in Moscow.

The photographic clubs maintain individual laboratories in factories, kolkhoz and sovkhos (Soviet agricultural collectives), barracks, clubs, village reading rooms, the casinos of the Red Army, and the editorial offices of newspapers and magazines. Each club is under the guidance of a teaching coordinator who maintains the group's focus on "the elimination of photographic ignorance." From time to time a higher-level teacher is added in the aim of recruiting new club-level teaching personnel.

One of the primordial tasks of all these organizations is the permanent quality control of chemical and industrial production destined to photographic use. Another is the struggle against underproduction with respect to the Five Year Plan, and quality control of the manufactured products. All allied industries are under orders to facilitate and encourage photographic propaganda and activity as one of the most efficient means available to the working populace, of Russia's economic and political reconstruction. Workshops and contests are organized throughout Soviet territory. Several of these take the form of circulating presentations hung in self-propelled trainers, each equipped with all the necessary equipment and products, which show in the remotest parts of the Soviet Union an example of imagery which constitutes the most powerful form of what is known as Propaganda.

#### Das Photo-Jahr (Photo Year) 1933

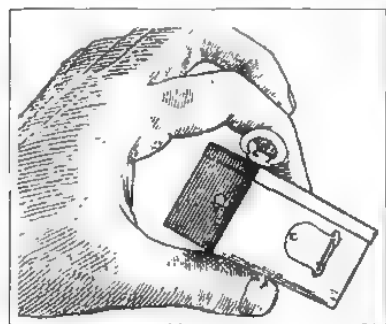


Cover of the Leningrader periodical "Optico-Mecanical " around 1937, announcing the Liliput.

# From Pre-Industrial Cameras...

Even if we should reconsider the two articles reproduced in the previous pages in light of our knowledge of events which have taken place in the meantime, they are eloquent testimonial about the ambiance of the time and the way the "proletarian revolution" was perceived by the two authors. These articles, both dating from 1933, appeared at the same time as the beginning of the second Five Year Plan, and describe the progress of the new Russian Empire during the first Plan.

The cameras produced are described in greater detail in the appropriate chapters (GOMZ-EFTE.) However between the cameras of the tzarist period and those of the era of triumphant socialist industrialization of the early thirties, a few cameras were produced in private, not yet nationalized workshops (perhaps the result of the NEP) see the light of day. After P. F. Poliakov's FOTO-GOZ, described in the GOMZ chapter, the oldest of these seems to be the camera made by P. Bostelman.



## BOSTELMAN's camera

c.1927

This camera, for which Bostelman individually registered the patent, is introduced in October 1927 at the first Interfederal Exposition of Photographic Technique in Moscow. It is shown in action the following year at the exposition "Ten Years of Soviet Photography." This is probably one of the first 35mm cameras of such small dimensions: 38x40x89mm, weighing 140g. (Compare Guérin's French "Furet" (Ferret) at 46x48x86mm and 250g; the "Riga" Minox at 18x28x82 and 130g.) It is also the first Russian full frame camera.

The use of a "cheap" periscope-type lens constrained Bostelman to incorporate a curved film path in the design. (13) Two meters of perforated 35mm film, contained in two dark-room-loaded film canisters (similar to the Furet) are sufficient to make 50 24x36mm images.

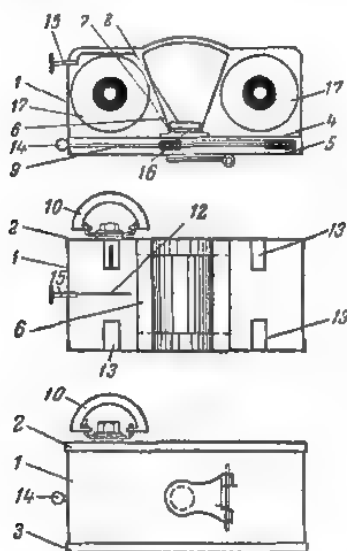
The shutter, placed in front of the lens, is a single-speed guillotine type. The shutter release is located on the side, while film advance is performed by a winding key. A clever flap protects the slightly inset lens much the way many of today's compact cameras are made.

The camera back is removable and, once it is removed, a special light chamber transforms the camera into an enlarger; this arrangement is similar to most of the "pre-Leica" 35mm camera systems.

This camera, apparently stillborn, attracts the attention of "special" services. Cameras such as the UFA, the F21 and others will come later ....

Bostelman's camera (from Syrov)

1. camera body; 2. upper panel, removable for loading; 4, 5. guillotine shutter; 6. film chamber; 7. lens; 8. lens mount; 10. film advance winding key; 15. pin marker button for cutting the film; 13. film spools; 14. shutter release; 16. diaphragm



Document from SYROV

## BURMISTROV' camera

c.1930

Probably inspired by the Esco of 1922, made by the German Otto Seischab, from which it takes the general shape and general characteristics:

enough 35mm ciné film for either 200 negatives 18x24mm or 100 negatives 24x36mm. (14) Conceived for document reproduction, the principal originality of the Burmistrov lies in its pressure plate.

F. L. BURMISTROV conceived a technique for countering the shallow depth of field inherent in the reproduction process. When unwound, the ciné films of the day did not flatten adequately in the film gate, especially when used for 24x36mm format negatives. A double helicoid mount is the basis of the system.

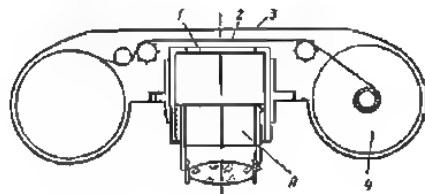
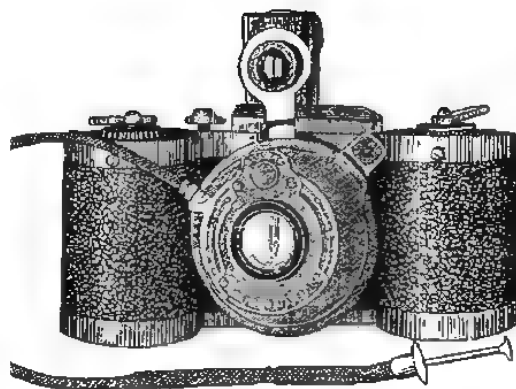
The lens, shutter and film chamber are fixed to the "interior" part of the mount (1) and coupled to the release lever.

The camera body is attached to the "exterior" part of the mount -3-. Rotating the lever to the left releases the film transport system, compresses the film in the film gate and permits the release to take place. Focusing can be done via a numerical scale or by a built-in "microscopic viewer."

Three interchangeable lenses were foreseen. The camera's descriptive material and several examples of results obtained can still be seen at the State Optical Institute (GOI.)

Burmistrov's camera (from Syrov)

1. "Interior" mount, supporting the exposure chamber (A), the shutter, and the lens.
2. 35mm perforated film.
3. camera body mounted on the "exterior" mount
4. film take-up spool.



Document from SYROV

## 6.5x9cm BOX c.1931-32

"PROBLEM" WORKSHOP in MOSCOW (see p.24)

## RECORD c.1936 РЕКОРД LENGORSO UPT METALOCOMBINAT LENINGRAD

Detective camera using film plates 4.5x6 cm.

Made by the Kombinat.

Periscope lens, f:10, 2 airspaced elements.

single speed shutter, ~1/30 s.

integral mechanism for changing plates, activated by a cursor.  
retracting viewing frame which slides vertically into the camera body.

Similar to the YURA, the FEDETTA, and the UCHENIK, produced respectively by the "Cooperative for Toys" in Moscow in 1934 or the "Gorbunov Plan" the following year (cf. FED), the Record is a mass market camera aimed at the youth market. These relatively inexpensive (!) cameras should appropriately be the object of serious greed in our day, as very few have probably survived.

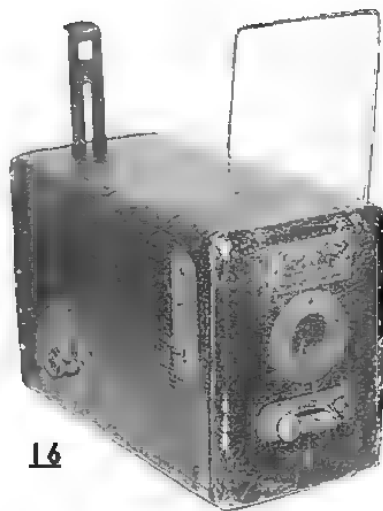


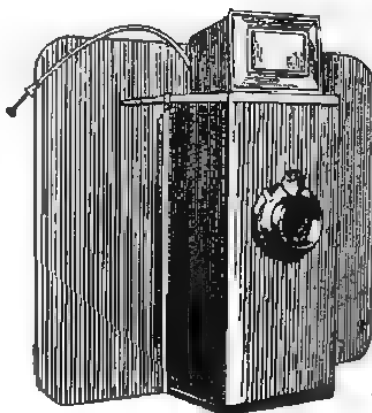
Photo M. Kostjukovski

## MULTIPLIER REFLEX by LIUBIMOV

Workshop unknown. c.1938

This curious camera greatly reminds one of the Multiprint Camera of Buess-Lausanne, Switzerland c. 1935 (16)

The drawing of E. O. LIUBIMOV's camera as it appears in the Syrov book, does not reveal the exact technical and functional characteristics. It is described as a "reflex" camera, giving 15 images 3x3.5cm (ID portrait format) on 13x18cm plate which is displaced with each image. Industar lens 10.5cm/f:3.5 in a GOMZ shutter (identical to the optics of the Turist or Forokor-3 6 5x9cm.) Nothing else leads one to believe that it was constructed by GOMZ



Document from SYROV

# From Pre-Industrial Cameras... (continuation)

## CYCLOCAMERA

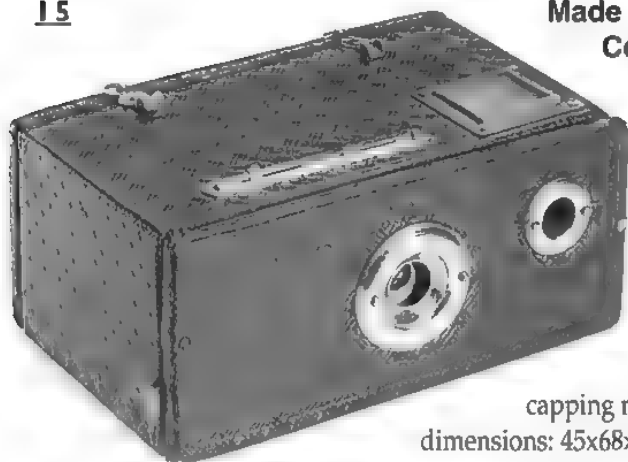
ARTEL NOVAYA SHKOLA

## ЦИКЛОКАМЕРА

LENINGRAD

c.1935

15



Made by the "New School Workshop" in Leningrad  
Conceived by S. CHAROV.

Horizontal box camera for 65 views 23x24mm on perforated 35mm film in a special darkroom-loading cassette. (15)

Simple reflex viewer with ground glass.

Double-action rotating sector shutter,  $\sim 1/50$ s. and B (as on Kodak Brownie.)

Meniscus lens, 38mm, with two diaphragms on a rotating disk, giving  $f: 6.3$  and  $f: 7.6$ .

Film advance by a claw mechanism combined with a metal capping mechanism, blind on the side, similar to the Amourette OTAG.<sup>(19)</sup>  
dimensions: 45x68x103mm; 240g.

### variations:

- covered in smooth black leatherette (see 1st ed. Made in the USSR);
- covered in black leatherette with a "caning" motif;
- covered in garnet red leatherette with a "caning" motif (seen in Moscow);
- covered in blue leatherette with a "caning" design (seen in Prague);
- covered in green leatherette.

Logo of the ARTEL NOVAYA SHKOLA,  
shared by the CYCLOKAMERA and UCHENIK  
"embossed" in the covering



## UCHENIK

ARTEL NOVAYA SHKOLA

LENINGRAD

c.1935

## УЧЕНИК

At first sight this is a cute, simple little beginner's camera, a clever compromise between a sliding box camera and a true box camera in wood and cardboard, covered in maroon leatherette, format 4.5x6cm.

The presence of a threaded tripod socket, fairly complex utilization procedures, and fairly "firm" controls make this a true camera for initiation into advanced picture-taking.

Probably foreseen for a photography school. (Artel Novaya Shkola was also a photo school.)

Lens: meniscus 80mm "Monocle"

Rotating sector shutter:  $\sim 1/100$ s. + T. (16b)

*Situated between the ranks of toy and that of beginner's camera, these little box cameras were placed in the inexperienced hands of debutante photographers.*

18

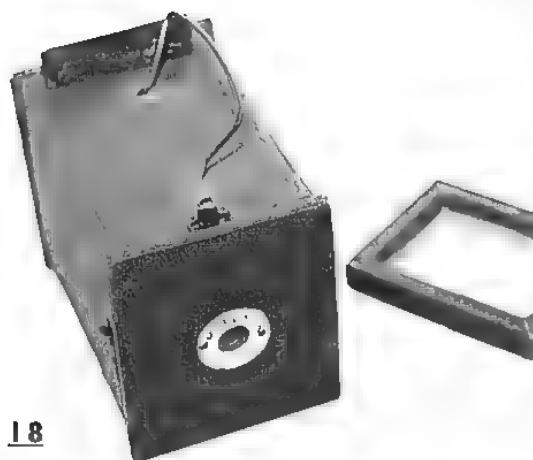


Photo Alain Berry

# ... to the Cameras of the 60's to the 90's

by Valia Ouvrier, professor of Russian Language

Attentive observation shows us a brilliant apogee in Soviet photographic creation in the decade between 1955 and 1965, and a subsequent decline after 1965.

I have long been preoccupied in finding the key to this phenomenon, or at least a convincing explanation for it.

The arms race produced a historical - and not solely economic - weakening of the USSR, is not as generally accepted a fact as it should be. If the arms race produced overall harm to all the countries concerned, it simply weakened the USSR.

This did not prevent Krushchev and Gorbachev, the only two men of Soviet politics involved in international détente, from being pushed toward the exit by, among others, the lobbies of the military-industrial complex.

Photographic equipment production in the USSR (as in other countries) has always been an offshoot of the optico-mechanical sector of these complexes. The Russians now openly admit this, even though it was no less true during the period when they kept it tightly under wraps.

The decline of what concerns us here, that is, of the quality of camera production, is quite obviously tied to the reinfusion of energy into the arms race by Brezhnev beginning in 1968. Let us recall that the massive renewal of terrestrial, maritime, and especially aerial armaments, as well as ballistic arms, begins in 1967. These were presented in July at Domodedovo airport and in November in Red Square. Some models shown as operational were in fact, only prototypes due to the fact that the programs had only just been initiated. (intox).

The costs of these programs and of the massive production certainly began to be felt toward the end of the 1960's.

Hitherto the USSR was still able to perform mechano-optical research and to manufacture the cameras resulting from this research, just like the arms, both of a rather classic style. With Leonid Brezhnev, the quality/quantity ratio of military production begins slowly to be upset. Which allows the USSR to arrive at equilibrium of forces with the West (according to western analyses seldom released to the public.) But this was obtained at the price of a tragic economic recession, poorly camouflaged by the relatively well-stocked shelves of the shops in the large cities.

One interesting analysis, published in the Russian magazine "Kommercant" (the Shopkeeper) sheds a pertinent light on the phenomenon: "...the tacit accord passed (after the XXth Congress) by the Nomenclature, tired of dying a violent death, concerning the "purchase" of loyalty by citizens, as well as the embryo of individual rights [movement] considerably enfeebled the mechanism of the Soviet state, and their cumulative effect proved to be devastating.

The social pact required a constant increase in the norms of social consumption, with a consequently greater efficacy in economic functioning, while the very weakening of the repressive principle led the system, based as it was on a non-economic coercion, to evolve in the opposite direction."

Just as in the west, military production requires more and more expensive research and higher and higher levels of production technology, leading to further increased costs, to which must be added the probably colossal costs of industrial espionage.

Since Soviet industry produces little or no profit as a whole, there are no budgets to develop civilian production or to insure the maintenance of high-quality production.

This was fully understood by the "Reaganian experts" who pushed for restarting the arms race, version "star wars," explicitly aimed at bringing the USSR to its knees.

It was also understood by Gorbachev when he pulled the plug on this course of action.

Thus one realizes why, starting roughly in 1968, there are primarily only developments, and mostly mediocre ones at that, of existing cameras.

Products which go hand in hand with an increase in production defects because unfortunately the criteria of technical quality control (the OTK) applied to military production are not similarly applied in the civilian arena.

This allowed me to see in Moscow in the early nineties, a sales person in the Jupiter shop unwrap four Zenit cameras to find one which seemed to work.

It is easy to understand why interesting prototypes like the Rodina, Kometa, followed by the Zenit-16, Zenit-D, Almaz, or Kiev-90 (of which I have never seen one in perfect working order) remained prototypes.

Their respective producers knew that they would never be able to arrive at series production or if so at a price which would have made them unsaleable in the domestic market. A few rare attempts at export were made, but with mediocre results, which further restrained the producers and persuaded them to concentrate solely on the domestic market.

The USSR was thus condemned to be a "large volume producer of cameras, and not a great producer."

To add insult to injury (and not only for the Russians [author's note]) Japanese cameras had come to the market, along with electronics....

Paris 1998





ГОУ



БООЗ



М



Министерство обороны  
Специальный отдел



# GOI - GOZ - VOOMP - GOMZ - LOMO

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## GOSUDARSTVENNOYE OPTIKO MEKHANICHESKOYE OBYEDINENIE

The factory still known in 1992 as LOMO/LENIN was created on February 4th, 1914 in Petrograd (1) as a "Russian stock company, for optical and mechanical production" with an initial capital of 1,200,000 gold Rubles. Two thirds of the shares belonged to the French firm, "Schneider et Compagnie".

A small workshop is opened in March, 1914 with 20 administrative employees in a research office. The factory buildings are finished and equipped toward the end of 1914. In 1916, a branch office is opened in Moscow.

1917. In Petrograd, the cruiser "Aurora" fires on the Imperial Palace. This is the beginning of the Bolshevik October Revolution.

1918. After the "crisis" the workshops reopen for business.

An initial series of 6 "Pathé" (!) type cameras is made, followed by a run of a thousand or so "Rouss" cameras designed and constructed by the factory's engineers. (17)

December, 1918. Birth of the GOI, State Institute for Optics, under the direction of physicist and academician D. S. Roshdestvensky (1876-1940).

In 1919, the factory stops working.

August 27, 1919. Lenin signs a decree ordering "the transfer of all photographic industry and commerce under the responsibility of the Peoples' Commission for Training...." Thus all the artisanal firms in the optical and mechanical industries are nationalized.

1921. The nationalized factory takes the name of "the State Optical Factory," giving the acronym GOZ. In the same year, the production of optical glass begins in Izium, and in Petrograd in 1924.

1925. Construction of a first camera, the FOTO-GOZ.

Between 1924 and 1929, Sloussariyev designs several experimental ciné lenses; these are not to be produced in quantity. At that point, the majority of the optical/mechanical production is for the ciné industry, some cameras, but mostly projectors, such as the TOMP-4 (fixed installations) and the GOZ (mobile equipment).

May 24th, 1928. Decree by the Superior Council of the Economy requiring GOZ to begin series production of a 9x12cm plate camera. Production of the FOTOKOR begins. (sidebar p. 35)

December 29th, 1929. The factory comes under the responsibility of the TOMP Konzern (trust) and becomes the "Interfederal Union of Optico-Mechanical Enterprises" (VTOMP), which in turn becomes VOOMP - the "Federation of Optico-Mechanical Factories." However, numerous disagreements between the Superior Council of the Economy, the VTOMP, and the Centrosoyuz cause serious production delays, and the Soviet photo press corps levels severe criticisms at VTOMP.

In 1930 new "managers" come to the firm....

Around 1932 the firm takes the name of "GOMZ/OGPU" (State Optical and Mechanical Factory/Federal State Bureau of Political Affairs.)

The OGPU becomes the NKVD (later the KGB) in 1934. (18)

"1930. A small experimental workshop, part of the Leningrad Optical Factory, is the first to produce domestically made cameras. With neither specialized personnel nor appropriate materials, this workshop produced 7172 9x12cm cameras (of which 4400 were Fotokors - author's note) Production in 1931 was 11408 units, and 68950 in 1932 in a new location." (L'Amateur Photo #22-32, 1937.). (78)

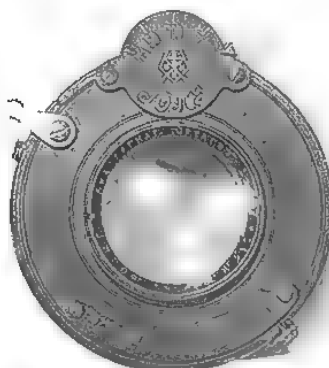
In reality, a first series of 100 cameras is built on June 25th, 1930, on the eve of the opening of the XVIth Congress of the Bolshevik Party. They are equipped with the Ortogoz [lens] of VOOMP, the first totally Soviet-built photo lens

By 1933 more than 11,000 people are employed by VOOMP. Four factories report directly to the TOMP Trust: Odessa, Kiev, GOMZ-Leningrad (particularly known for its ciné camera production) and Kharkov, producer of machine tools and the FED camera.

"GOI" is at that time, and remains today, the institute where all Russian lenses are either calculated, or if the lens was not designed there, verified. (It is not unusual) to find in the cameras fairs of collectors of current day prototype lenses engraved GOI. [see p. 79]

More than 100 tons of optical glass are produced annually at that time by LENZOS, the optical glass factory, managed in concert by IZOS, in Moscow, and I. V. Grebenshikov. LENZOS, in the 1920's, had taken over the premises of a stoneware factory in Leningrad

In 1934, Lebediev and Grebenshikov develop



GOMZ shutter

the concept of lens coating.

1933. following MIN's prototype (see p. 40-41), A. O. Gelgar begins to study a 35mm reflex camera, the Gelveta.

1934. In parallel with the increase in production of FOTO-KOR cameras (now at their 100,793rd unit), the factory is in preparation for production of new cameras.

1935. first series of "Tourist" cameras, of which 7,363 have been made. Preparation for production of the "Sport." (L'Amateur Photo #22-32, 1937.)

1935. The first Gelveta-Sport are assembled. Mass production is foreseen for 1936.

In 1936, I. Uvarov is the General Manager of GOMZ, while A. A. Vorobit is the Manager of Development.

"1936. Production of the "Tourist" camera is fully implemented, with production of 88,711 units, against production of 95,000 Fotokor-1. In seven years of assimilation of camera production, the number of specialized [middle] managers has increased dramatically."

A. O. Gelgar conceived the Sport as a 35mm camera. Rybnikov and Pimenov actively participated in the development of the camera. It has an original GOMZ shutter, entirely developed in-house, featuring "flap-type focal plane shutter" with speeds of 1/25s. - 1/500s.

1937. The "Reporter" camera, specially designed for press type reportage, was developed by Comrade Ionniissiani.... A professional folding camera, the Reporter features an interchangeable Ind-7 lens... The factory is doing everything possible to produce a first series of 25 Reporters for the Twentieth anniversary of the October revolution in 1937. (L'Amateur Photo #22-32, 1937.)

In 1939 seven cameras were being produced by GOMZ/OGPU: LILIPUT, MALIOUTKA, SMENA, TOURIST (all in bakelite), FOTOKOR, REPORTER, and SPORT, as well as the Industar-11, a 300mm lens for large formats.

During the first Five Year Plan (1928-32), 27,000 FOTOKOR were produced (1930-32). During the second Five Year Plan (1933-37) production is 520,000 FOTOKOR; 136,000 TOURIST; almost 3,000 LILIPUT; and several hundred GELVETA (later renamed SPORT.) In addition, there were several thousand 13x18cm view cameras known as FK and DK.

in 1938, '39 and '40, the first three years of the third Five Year Plan (cut short by the German invasion in 1940,) production figures were as follows: 357,300 FOTOKOR; 2,800 TOURIST (all in '38); nearly 140,000 bakelite cameras; more than 10,000 SPORT; and over a thousand view cameras and REPORTER.

Starting in 1940 the GOMZ/OGPU factory becomes a strategic military enterprise, all of whose employees are focused on production for the armed forces: binoculars, tank sights, fire control scopes, etc.

A single branch, GOI, continues to work on camera equipment; this results in the Foto-Sniper FS-2, for instance.

The war will have the same effect on cameras as on men - a considerable number of each will disappear.

June 22, 1941. Nazi forces invade the USSR, breaking the Germano-Soviet non-aggression treaty. This marks the beginning of the "Great Patriotic War."

Smolensk falls on July 16th; by early August the Wehrmacht controls the Baltic states. German troops encircle Leningrad during the first days of September, 1941, thus beginning the "900 day Siege." The Russian winter that year is even more severe than usual.

January 4th, 1944: Soviet counteroffensive begins.

January 27th. Leningrad is liberated.

The siege claims 1,200,000 victims; of these, 600,000 die from hunger. Numerous stories report the horror of daily life, as well as the heroism of the population.

Among these tales are reports that a quantity of Sport cameras met a premature fate at the bottom of the Neva River because the cases in which these cameras were stored were made of wood, a highly coveted material in those tough and frigid times....

This brief anecdote may explain the relative rarity of this model camera.

## FOTO-GOZ

Poliakov's FOTO-GOZ is without argument one of the most important cameras in the history of Soviet camera production. It seems to be:

- the first Soviet-era camera; the first constructed in a State factory (GOZ); and the first camera using 35mm perforated film, this in a country which will produce, between the 'thirties and the 'nineties, several tens of millions of rangefinder and reflex cameras.

### FOTO-GOZ (1925?)

Designed and developed by P. F. POLIAKOV, probably outside the GOZ factory where it will be produced.

Horizontal folding type, 18x24mm on 35mm perforated film; Double extension bellows. Focusing on a groundglass, with a swinging 6x magnifier built-in. Very compact body, 140x75x20mm in folded position, without film magazine;

Weight: 1kg;

-single speed focal-plane shutter operating at 1/100s.;

-f2/60mm lens (for a half-frame format!), calculated by the State Institute, GOI's optical engineer, D. TITOV.

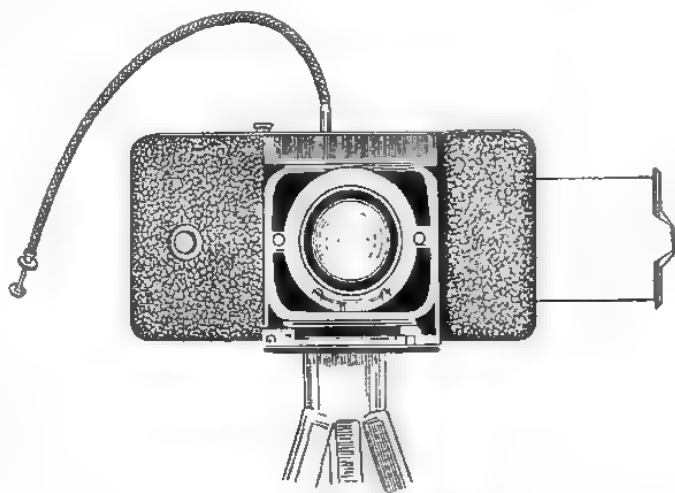
After focusing, the film magazine cassette is fixed to the camera body in place of the groundglass;

The cassette contains 1 m. of 35mm ciné film, giving 52 views.

The film goes from a feed spool to a take-up spool;

A projection lantern [adapter] was foreseen.

## ФОТО-ГОЗ



Le FOTO-GOZ. Document from SYROV.

Among the cameras described by A. A. Syrov under the heading of FOTO-GOZ, the illustration of the Leningrad (now L-221 and L-222) was long considered in the west as being a poor interpretation of a design sketch. We bet that the FOTO-GOZ (similar to the MIN) will certainly come to light some day, to our great satisfaction. And if the date of 1925 is confirmed, it will be necessary to reclassify the FOTO-GOZ among the ranks of the pre-LEICA 35mm cameras. (19)

## FOTOKOR (1928) 1930 - 1939 "PHOTO CORRESPONDENT"

1927. The Soviet authorities limit and then ban the import of foreign photographic material.

May 24th, 1928. The Superior Council for the Economy passes a decree charging the Leningrad Optical Factory (GOZ) with the responsibility of manufacturing a 9x12cm camera.

March 1st, 1929. Development of the FOTOKOR is finished and the first prototype is made. It is a more or less exact copy of the Zeiss Ikon Maximar 300. It is produced by the Experimental Factory (see also p 36), a minor workshop within GOZ, whose personnel are not really qualified. A first series of 100 cameras is produced on June 25th, 1930 and this is announced at the opening of the XVIth Congress of the Bolshevik Party July 20th, 1930. Beginning of series production 4,400 units are delivered between August and December, 1930, and 11,408 cameras

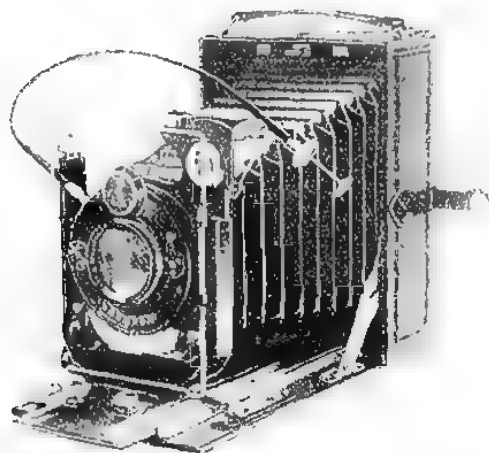
delivered during the year 1931. All these cameras were delivered with imported shutters, either Compur or Vario.

Each of these cameras cost 7.50 gold Rubles. (see p. 35) The government therefore orders a research program to develop Russian built shutters. This group is directed by A. A. Vorobjov.

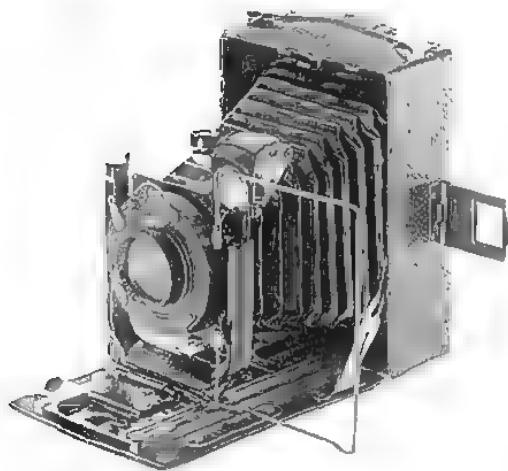
A State Photographic Bond issue of 70 million Rubles is launched in early 1931 by the Council of the People's Commissars (see p. 24.) This bond issue guaranteed to its subscribers the delivery of a Fotokor camera within a determined period. According to the terms of this bond issue, GOMZ was supposed to produce 550,000 cameras

November 10th, 1931. A first series of GOMZ shutters is ready, due to the efforts of Engineers Kovalievski and Frolov. By the end of 1933 all their cameras are equipped with Russian shutters and lenses capable of rivaling their "made in Germany" equivalents.

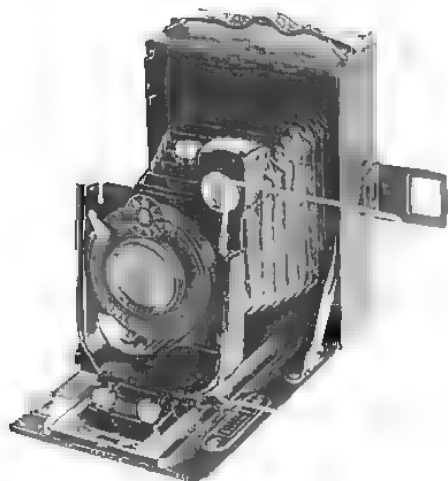
Between 1930 and 1940 about a million Fotokor cameras, of all types and models, are produced in what has become a true production facility.



G10 - FOTOKOR 1 "A" Compur Shutter



G12 - Two variants of FOTOKOR 1 "C" with GOMZ shutter:



## FOTOKOR 1

Folding plate camera 9x12cm

Reflex brilliant finder, plus folding frame finder.

Aluminum body. Focusing of double extension bellows by rack and pinion, on rear groundglass.

Vertical and horizontal shift of front standard.

Lenses: Ortogon 4.5/13.5cm (anastigmat)

Industar-2 4.5/13.5cm (less common)

### Models:

FOTOKOR 1 "A" 1930-32

Compur shutter, B, T, 1 - 1/200 s. (rare)

FOTOKOR 1 "B" 1930-32

Vario shutter, B, T, 1/25 - 1/100 s. (even more rare)

FOTOKOR 1 "C" 1932-39

GOMZ shutter, K, D, 1/25 - 1/100 s. K et D starting in 1932-1933.

Several variations in the shutter plate.

### Variants:

On the above models, the rear of the viewing bellows shows the initials VTOMP, then VOOMP, finally GOMZ from 1933, the logo determines the date of manufacture. Fotokors marked VTOMP with the Compur shutter are quite rare.

## FOTOKOR 2 c. 1939 - 40

Identical to FOTOKOR 1, but with TEMP shutter, K, D, 1 - 1/200 s. (Compur type) and Industar-2 4.5/13.5cm

## FOTOKOR 3 c. 1939 - 40

Folding plate camera 6.5x9cm.

Same general description as FOTOKOR 1, but without double extension bellows. lens. Industar-7 3.5/10.5cm (like the Tourist).

shutter: GOMZ or TEMP

# What's happening in the GOZ state optical factory ?

Press release by the G.O.Z factory director, T. TIMOTEYEV

Preparation of cameras began in the VTOMP factory last year starting with the development of a 9x12cm model featuring a double extension bellows and an anastigmat lens f:4.5 of 135mm, based on the best foreign models.

Mass production being foreseen, the implementation phase, including finalizing the plans and the tooling, as well as the training of personnel, took an exceptionally long time.

Shortages up to six months of raw materials - silumin (aluminum alloy), iron, leather, etc..., the lack of space and of machines adapted for series production, all contributed to delays in the actual production of cameras. As of now, the factory has placed on the market 1,200 Fotokor 1 9x12cm cameras with aluminum body, double extension bellows, Compur shutter and a Soviet lens, the 135mm Ortagoz whose quality concedes nothing to the Zeiss Tessar or the Voigtländer Heliar.

At this very moment 2,000 bodies are being assembled, and 3 or 4 thousand are foreseen for the end of the year.

The initial models should be considered a trial run and their finish is quite inferior to that of the foreign models. But we must say that the factory has garnered valuable experience in mass production and that the transfer into new facilities will let us produce 4,000 cameras per month.

However, production is vulnerable if the factory does not receive some real assistance next year, in order to produce the planned goal of 45,000 cameras. Concretely, we must receive the automatic rotating-tool lathes which were ordered last year for delivery in March, to make screws and other small parts.

The 5 automatic lathes now in service in the factory are overworked by three-shift manufacture of cine cameras and cannot also guarantee still camera production. We must also receive, and quickly, machine tools from the Lenin factory, and presses from Odessa to replace the ones ordered from abroad and still not delivered.

We need the rapid installation of silumine [aluminum-silicon alloy] production capacity, as it is indispensable for the injection molding of camera bodies at the Leningrad facility, "Red Vyborgien", getting the import license of Compur shutters, in sufficient quantity for all the programs, of which the potential is 5,000 cameras, as well as the delivery [of materials] necessary for making

shutters thus allowing us to free ourselves from the necessity of imports during 1931-32.

Finally, an obtention of all the raw materials of required quality, corresponding to the supplied specifications, without which the equipment cannot be produced.

Fulfilling these exigencies very quickly will offer the possibility of assuring the production of tens of thousands of Soviet cameras next year, and laying the groundwork for even greater production in the future.

Over and above the 9x12cm cameras, the factory is preparing a simplified, less expensive version, a 6x9cm metal camera with a simple bellows and a less luminous lens. The factory has abstained from making wooden cameras, given the campaign against them. Soviet public opinion, The Society of Friends of Soviet Cinema and Photography, the management of Soyuzkino, and the press must do everything they can so that the mass production of soviet cameras will not be interrupted.

For its part, the factory, bolstered by the deliveries of the requested materials, will be able to provide quality cameras to the photographic circles and to amateurs.

Beginning on October 1st, the Interfederal Central Council of Professional Unions will proceed with an interfederal verification.

Circles!! Participate actively in this verification. Reinforce your ties with the Unions!

T. Timoteyev



Lens polished workshop. VOOMP c1931



Assembly workshop FOTOKOR I.  
The personnel is principally women. Still the case to day.  
Soviet Press c1931



The experimental factory which signs the "VOOMP" is a research laboratory depending on the GOI; GOI is the optical research unit of VOOMP, which becomes GOMZ around 1932, later LOMO. Two cameras, copies of the Leica 1 (1), and of the Leica II, are made under this acronym, and are called PIONEER. (the lens caps are engraved Pioneer.)

In Sovetskoe Photo # 7 of 1934 production of the Pioneer is declared to have been stopped in June in Leningrad, to be restarted in

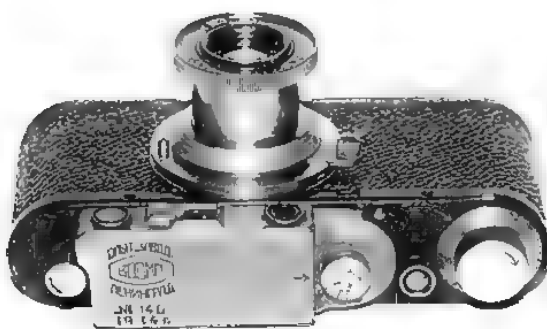
Moscow at the Geodesic factory . . (p. 116)

However, it seems that a further five hundred bodies will be assembled and engraved between 1934 and '37. These were certainly for "internal" use, since the parts were available....

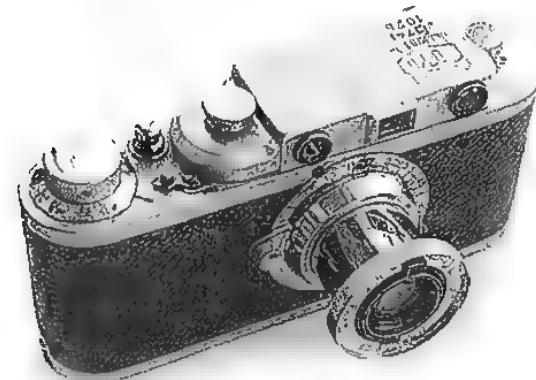
But also because the FAG of the Geodesic Factory will never in reality be produced. And also because the Russians of Leningrad - City of the Tzars - must want to keep a certain distance from the Kharkov factory (which engraves in 1935 its 10,000th FED.



VOOMP # 241 from 1934 - Document D. Lawrence.



VOOMP #140 - Moscow Polytechnical Museum



VOOMP # 741 de 1936 - Collection M. Kostjukowski

## VOOMP ou "PIONEER" 1933 G40

Copy of the Leica I (?)

Absolutely no information Unfortunately !

## VOOMP II ou "PIONEER" 1933 - 1937.

With the exception of a few details, it is a carbon copy of the Leica II.

Production seems to be around a thousand bodies, counting all three variants. 5,000 units were planned for 1935, and would have been delivered if production had not been brutally interrupted.

Variants :

## VOOMP II type A 1933 - 1935. G50

24 x 36 with coupled rangefinder.

Separate viewfinder. Rangefinder image has a yellow tint. The rangefinder cam is identical to that of the Leica. RF housing

ing and knobs are nickel plated. Flat housing, with no accessory shoe or other depressions. Leica-style embossing of the finder, but without threads.

Serial number and date of manufacture are indicated on the housing, under the engraving: Experimental Factory VOOMP (Federation of Optico-Mechanical Enterprises) - Leningrad.

Body finished in black paint

Focal plane shutter, B, 1/20s. - 1/500s.

Hatch for shutter adjustment hidden on the back

Back opening and film loading identical to Leica.

f:3.5/50mm lens engraved VOOMP Opytyi z d (VOOMP Experimental Factory), "Tessar-type" but looking like an "Elmar" with an Elmax-type focusing lever. 40mm thread mount; see GOI reflex housing page 38.

## VOOMP II typeB 1936. G55

24 x 36 with coupled rangefinder, identical to G50 but with upper and lower housings in matte chrome finish, and the inscription:

State Optical Institute (=GOI), VOOMP (Federation of Optico-Mechanical Enterprises) - Leningrad, serial number and date.

The focusing ring has no engravings for depth of field (nor does it on #140.)

# VOOMP-GOI

# ВООМП - ГОИ

## **VOOMP - GOI 1937 type C G60**

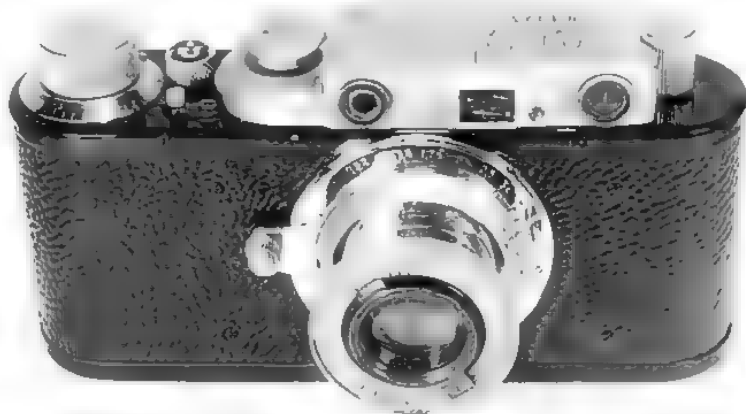
H. P. R. (22), presenting the VOOMP- GOI for the first time in his work "Leica Copies", correctly calls it the third model of the Pioneer.

Copy of the LEICA II.

Characteristics identical to those of the VOOMP; the GOI is a VOOMP, with only a few details changed.

The ridges on the vertical knurling on the operating knobs have been abandoned.

The engraving on the housing: GOI - NKTP - VOOMP is similar to that which one finds on the reflex housing "FotoSniper".



**VOOMP - GOI N° 1093**  
Document H P R

## **Numbers found on VOOMP type A, type B et type C:**

1933: none recorded

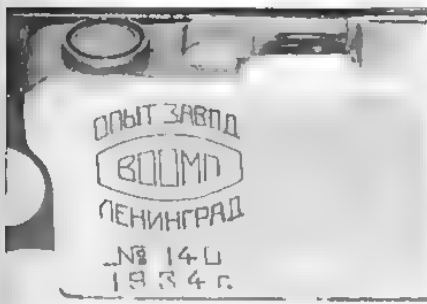
1934: #60 (lens #60); #70; #140; #189 (lens #613); #214 (lens #680); #241 (lens #618); #292 (lens #702)

#339 (lens #132); #396; N° 443 (lens #852). (154)

1935: #471 (lens #587); #484; #487 (lens #939); #543 (lens #1104); #686 (lens #1159).

1936: #741 (with engraving GOS. OPTIOU.IN-T in lieu of OP'T ZAVOD above the acronym VOOMP).

1937: #1079; #1093 (with engraving GOI-NKTP-VOOMP).



**Experimental Factory.**

**VOOMP:** Union of Optico-Mechanical Companies,  
**LENINGRAD.**

**Serial number.**

**Year (1934)**



**State Optical Institute**

**VOOMP:** Union of Optico-Mechanical Companies,  
**LENINGRAD.**

**Serial number.**

**Year (1936)**



**GOI (State Optical Institute)**

**NKTP:** People's Commissariat for Commerce and Industry

**VOOMP:** Union of Optico-Mechanical Companies,

**LENINGRAD - Year (1937)**

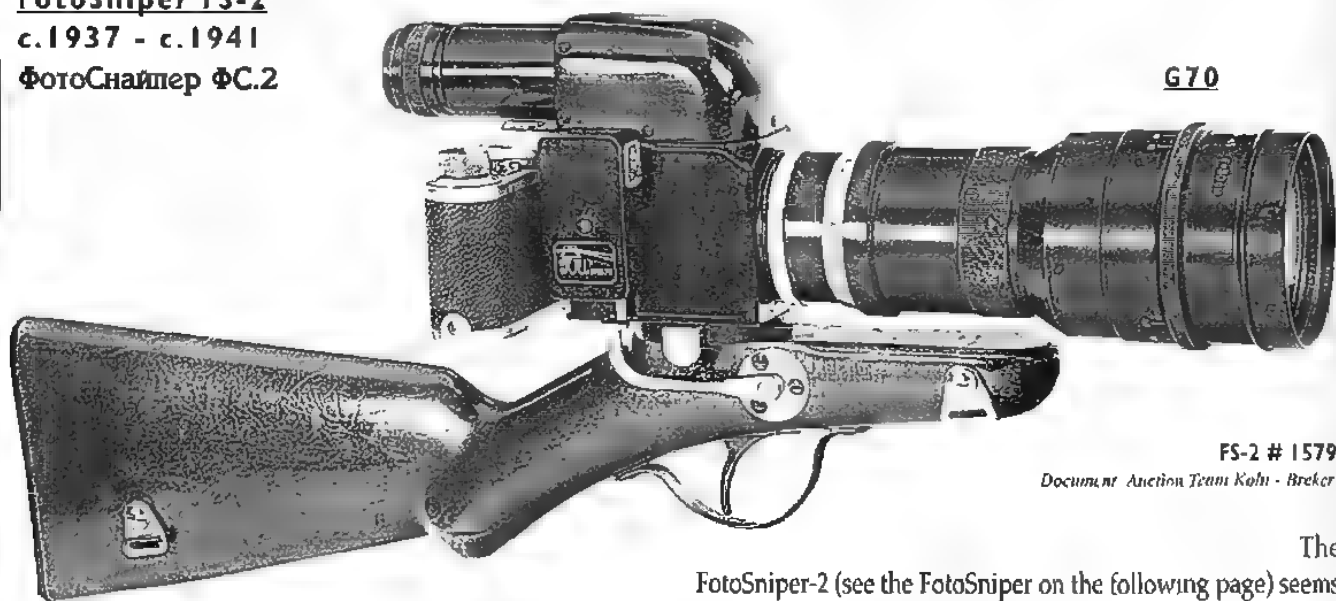
**Serial number.**

*It is this "classic" engraving that one meets most frequently in shops.*

*This camera was perhaps assembled to be used as a test body for the development of the reflex housings.*

*Its lens (#1212) is completely similar to the f:3.5/50mm VOOMP.*

**FotoSniper FS-2**  
c.1937 - c.1941  
ФотоСнайпер ФС.2



**G70**

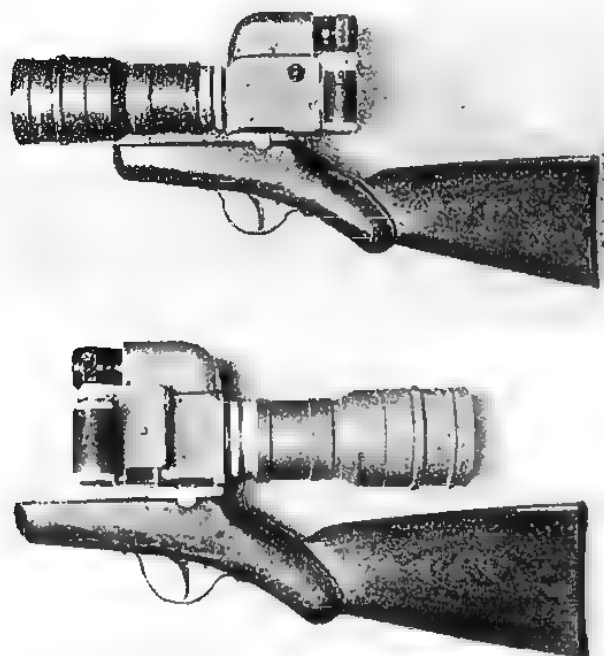
**FS-2 # 1579**

*Document Auction Team Kohn - Breker*

This Russian Photographic gun (103) came to light in the West for the first time in 1989 in a black and white illustration in the book "Historische Kameras" (Historical Cameras) by H. Kleffe and P. Langner (23).

The same model, #1438, is illustrated on the cover of HPR's book "Leica Copies;" the color photo shows the piece's khaki color to its full advantage. (22)

A camera which is incontestably of a military calling, the FS-2 seems to exist in several colors: green, khaki, black, and maybe light grey (unconfirmed)



These two documents, from Sov. Foto, show how the FS2 was stored. They show the short viewer model.

The FotoSniper-2 (see the FotoSniper on the following page) seems to have been produced, probably for the armed forces, in very small quantities, between 1937 and 1941.

The imposing reflex housing, showing a very bright, enlarged image, with adjustable diopter settings, is equipped with a gravity-based rapid-return mirror

For picture-taking, the mirror release and the shutter release, activated by pulling the trigger underneath the gunstock, are synchronized.

The FED body is attached to the reflex housing by means of a quick-release mounting, which is attached or screwed to the body. An optically neutral glass cover protects the rear of the housing thus guaranteeing the air-tightness of the housing and avoiding any exchange of air between the camera body and the reflex housing at the moment that the oversized (41x47mm) mirror flips up.

The GOI f4.5/300mm lens in a 44mm screw mount, is recognized for its exceptional sharpness. (see p. 171.) Its focusing is quick and smooth and requires only 270° from infinity to 6m. The combined unit - body, reflex housing, and lens - is well balanced and is fixed to the gunstock by a quick-release bayonet. Likewise, disassembly of the photographic elements from the gunstock is done in a flick of the wrist. All manipulations, especially rewinding the film, are thus made easier. Indeed, a photographer lying in ambush could change bodies, like one does when changing film magazines on a modern medium-format camera, without much dangerous movement.

#### Variants:

- G70 - model with short eyepiece
- G71 - model with long eyepiece
- various colored versions - olive drab, khaki, black or light grey.

The GOI FotoSnipers are delivered to the Soviet Army in very attractive carrying cases (see HPR's "Leica Copies") until the time that the city is encircled by German troops in September, 1941. Without raw materials or a means of delivery because of the siege, the plans (and perhaps the tooling) transit from Leningrad to Moscow.

At the same time in Kharkov, in the Ukraine, the FED Kombinat is evacuated to the Ural region. (see p. 91) This firm, like all those displaced far from the front, is immediately reconverted to military material production, not necessarily photographic. However despite requisitions, the need for cameras is an urgent, priority concern.

Parts for the FotoSniper, like those for FED, are transferred to Moscow. The KMZ factory will manufacture some FotoSnipers and 30cm lenses under its own label, and will perhaps assemble some FED with the help of the ex-Berdsk engineers transferred under orders. [Author's note: these last lines, although based on historic documents, must for the time being remain a theory, I must admit.]

What is sure is that another FotoSniper equipped with a 30cm Taïr lens, practically identical with the one delivered by GOI, is made by KMZ around 1944.

On the reflex housing are engraved the symbols of the Army: the hammer and the sickle are inscribed within the red star, underscored with the "tomb" logo of KMZ since 1942, and the serial number. (see p. 121)

During the sixties Kazan, a subordinate operation of KMZ, will produce the same 30cm lens engraved .

*Known serial numbers:*

Khaki: #1438

Black: #1365. #1366. #1575. #1579



The reflex housing and the f:4.5/30cm GOI lens seem to be a few centimeters shorter than the FS-2.

*Doc. Mark Kostjukovski*

# FS-I

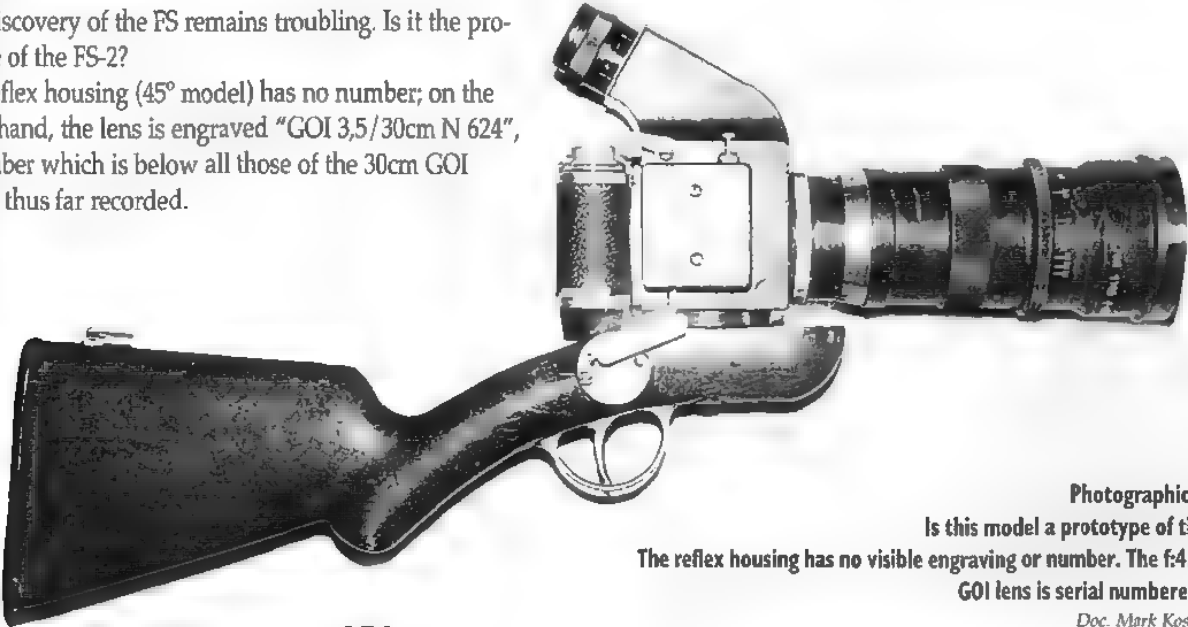
# ΦC-1

**FotoSniper FS**      **c. 1937**  
**ФотоСнайпер ΦC**

A similar lens was made in Kazan around 1963 (see p. 248.)  
For now, at least, it remains a mystery.

The discovery of the FS remains troubling. Is it the prototype of the FS-2?

The reflex housing (45° model) has no number; on the other hand, the lens is engraved "GOI 3,5/30cm N 624", a number which is below all those of the 30cm GOI lenses thus far recorded.



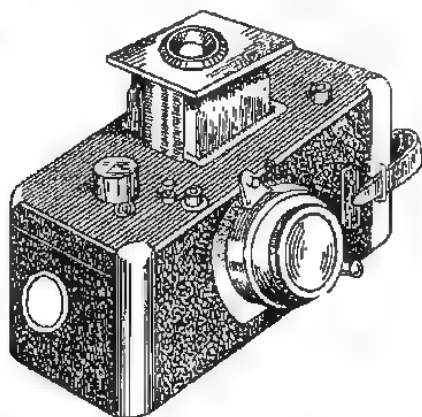
**G78**

Photographic gun FS.  
Is this model a prototype of the FS-2?  
The reflex housing has no visible engraving or number. The f:4.5/30cm GOI lens is serial numbered #624.

*Doc. Mark Kostjukovski*

The first 35mm camera using 24x36mm format is not the Leica (9). And if, like it, the Kine-Exakta (83+88) remains the father of a glorious heritage as a camera, it is no more than the Leica the first, even if every 35mm reflex in existence is to some extent, one of the Exakta's great grandchildren. It would seem that the title of "Oldest" belongs to the MIN reflex.

The first model Leningrad reappeared before our hitherto incredulous eyes, in 1996, guaranteeing forevermore the impressive work of A. A. Syrov. We can only hope for the historic reappearance of the MIN reflex.



Reflex by MIN - Document from SYROV

## **MIN c.1929**

**G80**

**Conceived by A. A. MIN (А.А. МИН)**

24x32mm reflex with a sliding waist-level viewfinder which forms a focusing magnifier. Loading is via special magazines giving 75 images on 2m50 of perforated 35mm ciné film, or 100 images on film in rolls.

Focal plane shutter adjusted by a single control knob; variable spring tensions combined with 4 fixed slit widths give 8 speeds.

The mirror created a light-tight chamber (like a flap-type focal plane shutter) allowing the camera to be cocked and the film to be advanced without fogging it. The pressure plate retracts from the film during film advance, following Burmistrov's concept. (see p. 26)

Device for notching the film between views. (see the Bostelman p. 22).

VOOMP 3.5/50mm lens. Dimensions: 146x75x50mm



Gelveta, presented as the VOOMP  
Document Sovetskoye Foto. 1-1935

## **GELVETA c.1935**

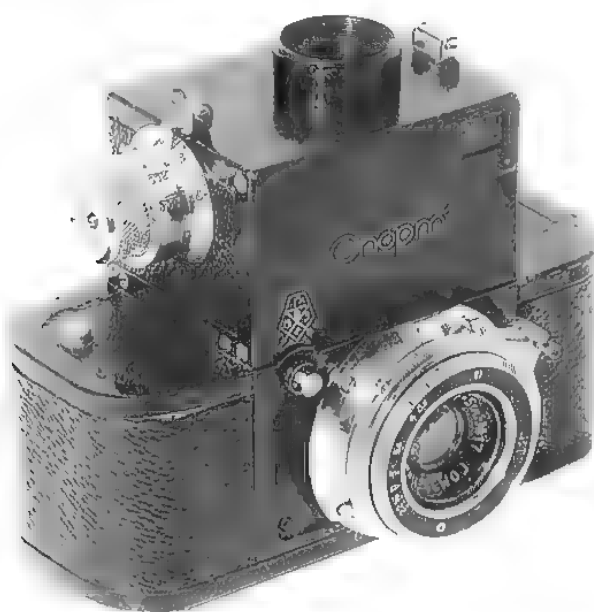
**G85**

**Designer and creator A.O. GELGAR (А.О. ГЕЛЬГАР)**

The camera's name is a diminutive of its creator's, but at present no camera with that engraving has been discovered.

The 'Gelveta, later the Sport, is a "monument" on more than one level. While surrounded by mystery for a long while, the Sport, in its mass produced version, was also considered the Exakta's rival for the title of "World's first 35mm reflex camera." We now know that series production of the Sport occurred after Ihagee had begun. However, the camera illustrating the article in the January, 1935 issue of SOFO is, beyond a shadow of a doubt, a prototype or pre-series camera. It is the Gelveta. An elegant design appears on the lens cap. It seems to bear the name

"Gelveta." The general specifications are those of the future Sport, and without wanting to appear more Cartesian than I really am (this is a French specialty) the camera illustrating an article in the January, 1935 issue of a magazine must date from 1934. (see Sov. Foto #7, October, 1934.) And if its development required as many months as its production, the camera was perhaps already under development in 1933 by Gelgar at VOOMP, in parallel with the Leica copies. Unusual in its shape as well as in the technical solutions employed, derived probably from the MIN, the Gelveta is among the most desirable cameras an iconomechanophile could hope for.



Magnificent Gelveta # 7, with GOMZ lens #17 Document M P Mioduk

## **GELVETA/SPORT - 1st version of the Sport.**

(engraved Sport + GOMZ)

**G90**

perhaps fewer than 300 units

35mm reflex camera 24x38mm or 24x36mm according to the model perforated 35mm ciné film but in rolls with paper backing, with red window for frame counter of 50 images.

One-way film transport from feed spool to take-up spool, with no possibility of rewinding.

Black lacquered metal camera body covered in black leather. The reflex housing element comprises a single block incorporating the waist level finder and focusing magnifier. Galilean viewfinder incorporated in this "finder block." Strap lugs also located on its top plate.

The camera back comes completely off, like the Krauss Eka. (19)

Shutter incorporating sliding metal plates.

The first "curtain" is vertical, sliding up to hide behind the viewfinder, explaining its massive appearance. The second, lodged beneath the oversized (27x42mm) mirror, follows a vertical curve to join up with the other

one. (see drawing of the mechanism, p. 42.) On the viewfinder block is also the horizontal knob serving for shutter speed setting, and combined shutter and film advance knob.

Lens: Industar-10 3.5/50mm mounted on a unique bayonet mount looking something like the Contax front style by Zeiss.

Lever operated focusing with an infinity catch.

#### Variants :

G90- Classic version of the rare Gelveta-Sport

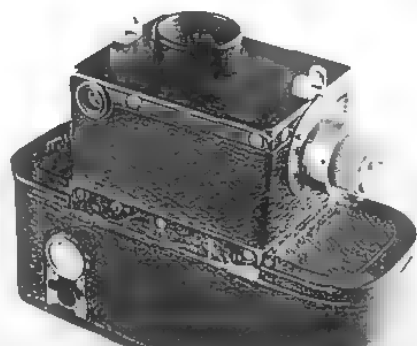
G91- Body in crackle green paint finish (24)

G92 - Intermediate versions of the Gelveta-Sport between #302 et 332, some with film advance window.

G93 -chrome front plate (non original).



**Gelveta #301, and its successor Ihe Sport in the back ground - Doc. P. Bobinski**



**Back of Gelveta #301, with frame counter window for the paper-backed 35mm film.. Doc. P. Bobinski**

## УСТАНОВЛЕНИЕ ДАТ ФОТОАППАРАТА ГЕЛЬВЕТА-СПОРТ Dating of Gelveta and the Sport through the Soviet press.

*Documents compiled by Oskar Fricke (25) and Jean Loup Princelle.*

1929 - 24x32 MIN reflex

1933 *Presentation of Ihagee's reflex 4x6.5cm VP Exakta at the Leipzig Spring Fair.*

1934 - Sovetskoye Foto #7 (October- p.44). "Next year has been targeted for the start of production of the "Gelveta", a cine-film reflex model of new and original design developed by engineer A. Gelgar. It possesses all the qualities of the Leica and Contax, but is built like a reflex camera."

1935 - Sovetskoye Foto #1 (January) "An experimental model is currently being assembled which uses ciné film with focus on frosted glass onto which the image is reflected by a mirror and observed through a special magnifying glass."

1936 - Sovetskoye Foto #4 (April, p.40) "At the OGPU memorial optical factory (GOMZ) in Leningrad production of the Sport camera has begun. The new camera is like a reflex-Leica, using standard perforated film. The camera uses 2 meters lengths of film, which makes it possible to make about 50 images. The image size is 24 x 38mm. With the boundary between images eliminated, it is possible to make panoramic images (sic...) directly on the negative. Design of the camera was developed by engineer Gelgar.

1936 *Leipzig Spring fair, presentation of Kine-Exakta. The device, already announced in some catalogs in 1935, is indeed available at the beginning of 1936. (88)*

1934 - Sovetskoye Foto #7 (July, p. 41-42) descriptive and critical article by D. Bunimovich : "... The OGPU memorial GOMZ factory in Leningrad has completed its construction of the first test examples of the new camera 'SPORT', with the intent to begin serial production in the near future..." (Comrade Gelgar is mentioned on page 42 of the article).

1937 - Sovetskoye Foto #11 (p.18) in an article signed by I. Uvarov, director of GOMZ, the SPORT is illustrated and described, along with Fotokor, Reporter, Liliput, and Tourist. (A. O. GELGAR, is not mentioned any more)

The delivery of the SPORT is promised to amateurs and reporters for the 20th anniversary of the Revolution, so in October, 1937.

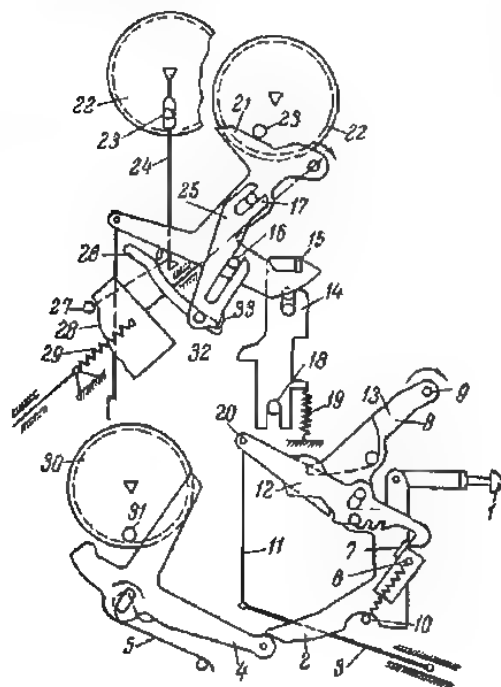




Sport #847. "classic" version.



Sport #18346.  
Last version with simple nickel face lens.



Schematic of the cocking mechanism of the Sport shutter.  
Document from SYKOV.

## SPORT 1936 - 1941 # 847

G100

Mass-produced model of the Gelveta. (95)

Total production: about 19,000 units.

In 1935, the inventor/engineers Rybnikov and Postnikov participate in developing the new version of the Gelveta-Sport. (see p. 47)

The first examples of this evolutionary model start around #320 and the highest number reported is around #19,000. General technical characteristics are identical, but the injection-molded body is redesigned. The Sport is rounder, and the shapes are more refined. The back is removed as on the Zeiss Ikon Contaflex.

The back opening key lug is also inspired by Zeiss.

Film transit is from feed to take-up cartridge; these are especially designed for the Sport. Capacity of 35mm film is adequate for 50 views 24x36mm.

The front of the viewfinder gets the GOMZ logo in a small lens-like circle, on a yellow or orange background.

The viewfinder window is now surrounded by a decorative rectangular molding, in lieu of the strap lugs which are now gone.

The upper housing is attached first by 6 screws, later by only 2

The optical system remains unchanged.

Despite the existence of a bayonet mount, no focal lengths other than the f:3.5/5cm lens are known.

Variants:

G101 - Lens with black face, like the "Contax" type.

G102 - Later version with simpler nickel face lens.

G103 - Green leather (VIP version?)

G104 - Different embossing above the shutter release.

G105 - Sport chrome lens and control knobs. (c. #5000).

## SPORT-2 1941 (marked Sport 2 on the front)

G109

Body undergoes a few modifications (?) A celebrated Moscow repairman declares that he has had this camera in his very own hands.

GOMZ shutter:

- 1- release button
- 2- release lever
- 3- lower curtain
- 4- mirror lever
- 5- spring
- 6- crown
- 7- finger
- 8- lever
- 9- lever axis
- 10- stop
- 11- string
- 12- lever
- 13- mirror lever spring
- 14- lever
- 15- finger follower

- 16- 17 sliding guides
- 18- guide
- 19- spring
- 20- hinge
- 21- lever
- 22- nut
- 23- shaft
- 24- speed setting lever
- 25- sliding piece
- 26- track
- 27- fulcrum
- 28- notched crown
- 29- spring
- 30- nut
- 31- 32 shafts
- 33- sliding follower

This shutter release mechanism is entirely metal, with nickel-plated components, allowing speeds from 1/25. to 1/500s., with better accuracy and at very low temperatures as low as -40° C (-40°F).

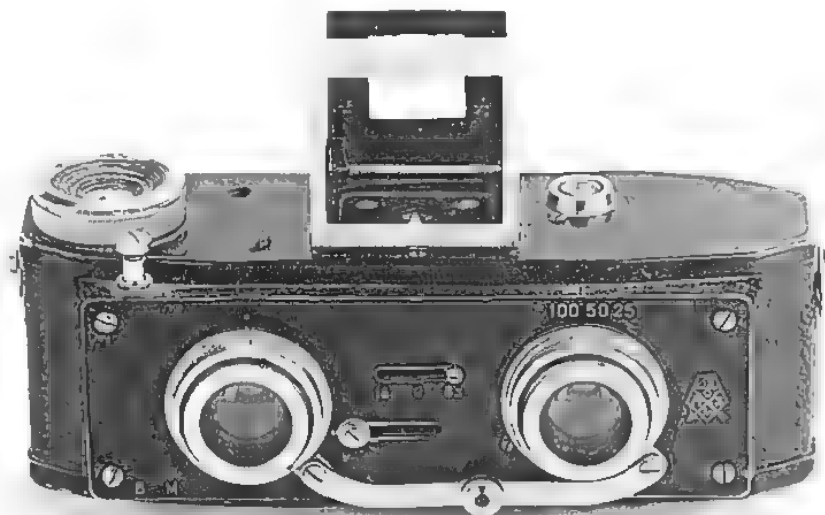
# Stereo GOMZ

## Prototype (?) Stereo-GOMZ

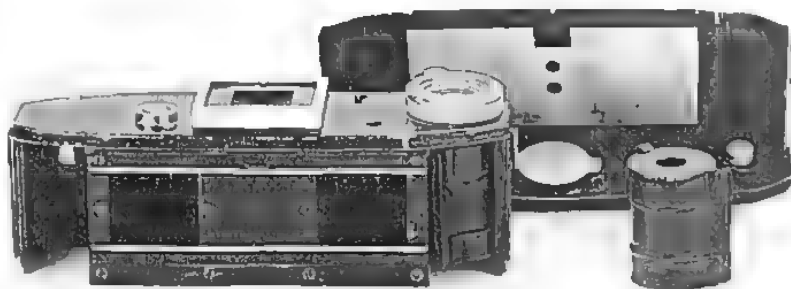
c.1938-1940

- Stereo camera 24x30mm on perforated 35mm film, in special cartridges.
- Folding frame finder
- Spirit level
- Guillotine shutter with speeds: B, 1/25, 1/50, 1/100s.
- Knob film advance by interleaved pairs.
- Cocking and release controls located on front plate.
- Paired f:6.3 lenses with sliding stops f:6.3, 9, 18
- 72mm interlens distance (110).
- Coupled focusing, 1.5m to ∞
- Removable back with lug opening system identical to that of Sport
- Cartridge to cartridge film transport, identical to that of Sport

Perhaps created by Gelgar, Rybnikov, Postnikov or Pimenov. This stereo camera, (like the SPORT with which it shares some parts), inspired by certain western models, also bears witness to the technological advance unfortunately broken clean off by the war.



Stereo GOMZ - Document P. Bobinski



View of the film gates of the Stereo GOMZ with the back removed. The film cartridge is the same as on the Sport. - Document P. Bobinski

## 6x6 of unknown origin, and 9x12 Quadratt

6x6 c.1940

G170

Presented in a Soviet magazine (maybe Sov. Foto) in an article about production at GOMZ-OGPU, this horizontal 6x6cm folding camera, apparently a prototype, has an f:4.5 lens in a Moment shutter with speeds from 1/2 to 1/150s., and an accessory shoe.

(!)

Never series produced.

9x12 QUADRAT - КВАДРАТ- c.1940

G180

Professional monorail camera (with square bellows) and reproduction outfit. Delivered with an Industar-2 4.5/13.5cm lens, in a fitted transport case.

Never series produced.



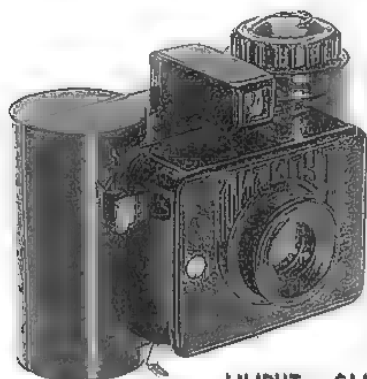
# LILIPUT - MALUTKA

# ЛИЛИПУТ - МАЛЮТКА

Here are three copies of small Western cameras, that strike joy into the hearts of collectors of miniature cameras, or bakelite cameras, or simply of "Russians." Produced in more than 150,000 units as "everyman's cameras" for young Soviet amateurs, even their names are very evocative: Liliput, Little Pal, and New Generation.

The Liliput was presented to the press at the time of the XXth anniversary of the October revolution, and was the cover feature of the optical magazine of the OPM in Leningrad. (see p. 25)

They show up from time to time at collector fairs, where they have the same success now as before.



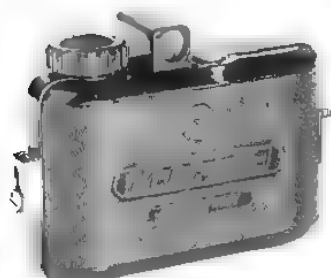
LILIPUT - G110



LILIPUT - G115



MALUTKA - G121



## LILIPUT 1937-1940 "LILIPUT"

## G110 / G115

Bakelite miniature giving 12 images 24x24mm on 35mm paper-backed film. Darkroom loading recommended.

Exact copy of the F. Kaftanski's Sida using a lens of 9/38mm instead of 8/35mm. Shutter: B, 1/25 s.

Variants:

G110 - the original model. Shown by Syrov. (26)

The name "Liliput" in Cyrillic characters, appears in raised letters on the front. Black bakelite. This version is shown in the instructions and the original boxes.

G115 - Black finish model with the name "Liliput" in Cyrillic characters appearing in raised letters on the rear of the body.

G116 - Red model.

G117 - Brown with speckled design

G118 - Blue.

G119 - Green.



Original box of the Liliput

## MALUTKA 1939-1940

## The "TINY"

## G120

Derived from the Liliput, the Malutka keeps the front plate, including the lens and shutter housing, of the second model Liliput. The shutter speed is now 1/50 s.

Same 24x24mm format as the Liliput; same constraint about darkroom loading.

The name "Malutka" is molded into the camera back, with the GOMZ logo above and Leningrad below.

Variants:

This magnificent little camera exists in several colors:

G120 - Black.

G121 - Red with speckled design.

G122 - Brown with speckled design

G123 - Blue.

G124 - Green.

## SMENA 1939-1941

G130

"New Generation" or "Changing of the guard".

Conceived by I. SHAPIRO. (34)

Model inspired by the f:6.3 KODAK BANTAM of 1935 but superbly redesigned by the young engineer I. Shapiro.

The Smena is a small, bakelite folding camera, giving 20 images 24x36mm on paper-backed 35mm film.

Triplet 6.8/50mm, front element scale focusing from 1.50m to ∞

Shutter: B, 1/50 s.

Folding frame finder

Film advance by knob, with frame counter window on camera back.

More fragile than the other two, it is also the rarest.

Variants :

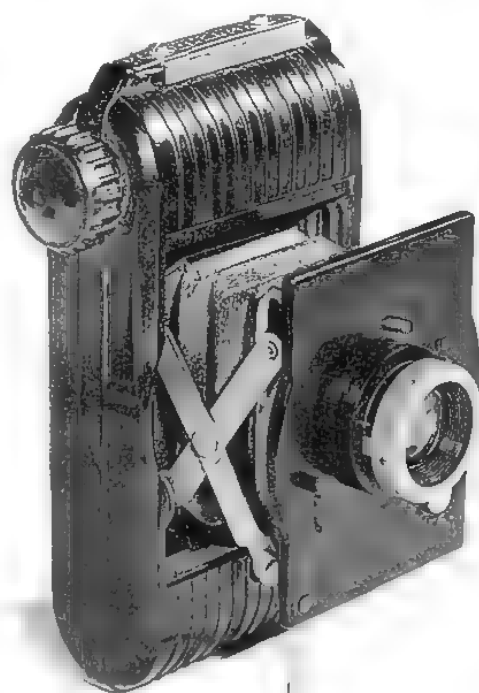
G130 - the Smena, magnificent in red "speckled" finish, also exists in:

G131 - black

G133 - blue

G134 - brown

G135 - maybe in green.



SMENA - Document C. Baron

# TURIST

# ТУРИСТ

Popular "everyman's" camera with a bakelite (97) body, the TOURIST appears at the beginning of the second Five Year Plan (1933-37), at the same time as the start of mass production of the firm's own shutter, as a "support" for the production of the Fotokor. The Tourist is perhaps also a first appearance of "Plan" cameras. (27)

## TURIST 1934-1938 "TOURIST" G160

136,600 units produced.

6.5x9cm "Klapp" type folding camera in black bakelite, inspired by the ICA "Bébé". Folding optical finder in vertical mode; folding frame finder in horizontal mode.

GOMZ central shutter, B, T, 1/25 - 1/100s.

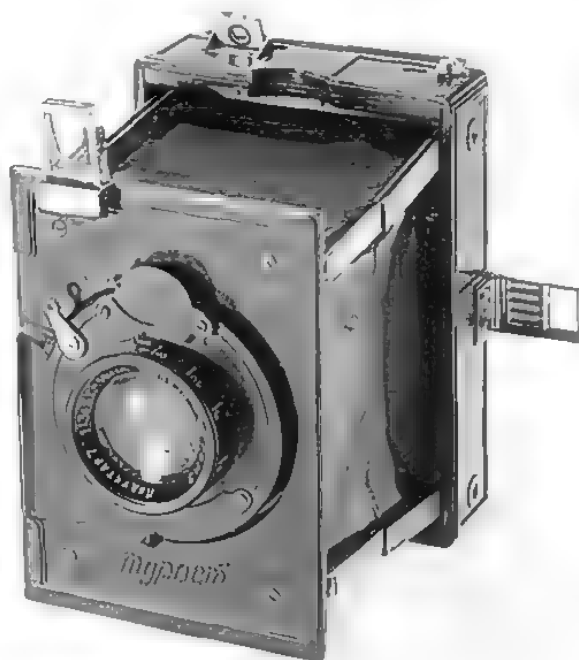
Industar-7 3.5/10.5cm lens

Groundglass focusing or by front element scale focus

6x9cm rollfilm or special cassette using single plates

Variants:

There are several front standards, more or less elaborately worked, sometimes without the GOMZ logo.



TURIST - G160

## TURIST-2 c.1940

G165

Camera body with "TURIST-2" on the front, announced but so far never seen.



**G190**

**Reporter #432**

*Doc. P. Bobinsky*

## REPORTER 1937-1940

"REPORTER"

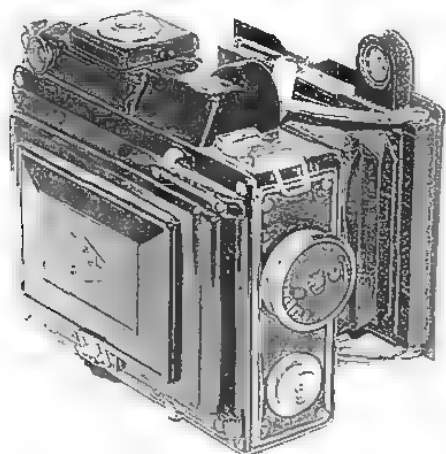
Around 1150 units.

**Conceived by A.C.IONNISSIANI**

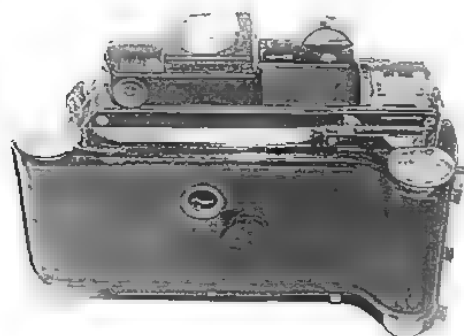
*Developed by Ionissiani with help from engineers Rybnikov, Postnikov, et Pimenov (see the Sport).*

*The Reporter is a hybrid Klapp-type folder, half Plaubel Makina, half Zeiss-Ikon Nettar. However, the Reporter is more than a mere copy; it is the proof that the Russian engineers and designers had mastered a complex technology in only a few years, and at times to innovate.*

*Presented in the July 1937 issue of the magazine "Lubitel Foto" (Photo Amateur) and in the November 1937 issue of Sov. Foto, in an article by I. Ouharov, the director of GOMZ, the Reporter does not actually enter into production until 1939.*



**Rear of the Reporter** - Doc. Moscow Polytechnic Museum



**120 Back of the Reporter** - Doc. M. Kostjukovski

Strut folding camera in chrome and black lacquer, using 6.5x9cm plates in a special holder, or 6x9cm images on rollfilm with the appropriate back. Folding finder, blue-tinted glass eyepiece.

Prismatic compensating rangefinder, coupled with the lens, allowing rapid and accurate focusing without having to use the ground glass. (Technique is close to that of the Zeiss Ikon Super Ikonta).

Interchangeable Industar-7 f3.5/10.5cm bayonet-mount lens

Lever helicoid focusing, rangefinder coupled (a full range of lenses was foreseen)

Depth of field scale (removable for different focal length lenses) on the front standard

Cloth focal plane shutter B, T, 1/5 - 1/1000s.

Shutter speed selection **MUST** be made before shutter is tensioned

Shutter release button on front of camera body, capable of taking a cable release. Accessory shoe

The Reporter is delivered in a superb leather case with a shoulder strap, and is equipped with 3 filters, 12 metal plate holders, film pack adapter, cable release, and a camel-hair lens brush.

(Authors note. The raised rim around the shutter-tensioning knob has a family resemblance with the one around the viewfinder of the Sport. Maybe this is Rybnikov's signature.)

**Serial numbers known in 1999:** 25, 54, 141, 201, 234, 286, 312, 343, 407, 426, 432.

The number is engraved on the film gate at the rear of the camera.

# Andronik Constantinovitch Ionissiani,

Based on "This world of Russian things that are disappearing, these names that are leaving..."

Essay by Irina E. FROLOVA, Historian, Astrakhan - Russia.

"Andronik Constantinovitch Ionissiani (1904-1942), the elder of two brothers, participates in the research group "Factory 340 OGPU (GOMZ)" starting in June, 1936. He is a passionate photographer, universalist and is already recognized as an inventor; he delivers on May 1st, 1937, after an incredibly short gestation, two prototypes of "The Reporter" a professional press camera.

The plans, the tooling and processes necessary to produce this camera are ready in less than a year

In conjunction with the chief engineer's name, those of the other development engineers Rybnikov and Postnikov, designers Sverdlov and Rimmer, and Project manager Nikitine are revealed to us thanks to the formidable work of historian Irina Frolova.



Andronik Constantinovitch Ionissiani, inventor of the Reporter, next to Mme Rimmer, draftswoman.

The constructor Postnikov is in the background. Doc. I. Frolova

According to Irina's research, the "holes" in Ionissiani's resume in 1935 and '36 give rise to a legend whereby the Russian engineer took part in a mission in a major German factory, the (later) famous firm, E. Leitz.

On his return, he reproduced from memory the entire technical documentation indispensable for the rapid development of camera production of what would become the VOOMP "Pioneer" and the FED cameras. (85)

Officially, Ionissiani, had been administratively transferred at this period from Leningrad to Saratov to the tractor factory "Traktordetail" for the NKVD's account.

A short time prior to the world war, the Engineer received the Order of the Red Flag honor. However, as the reproduction of two official documents, his work record and the "record card" delivered by the Workshop Committee President at his death describe "a wide ranging builder of civil, military, and laboratory equipment distinguished by their great qualities, .. However ... with respect to social activities, he fulfilled episodic jobs while being elected repeatedly to various workshop organizations rework for subtlety"

These last lines are the the severest political resume possible to describe the existence of a man.

(Author's note: we will let the reader read between the lines....)

The "Great Patriotic War prevents Ionissiani from developing his talent fully after the Reporter.

The world War changes the orientation of research in his field and Ionissiani works in besieged Leningrad on the development of a bomb sight.

Like many other Russians during that cruel period, Andronik C. Ionissiani died of hunger on March 30th, 1942 at the GOMZ factory dispensary.

The younger brother, Bagrat C. Ionissiani (1911-1985), survived the war and became a great constructor of astronomic telescope surveillance.

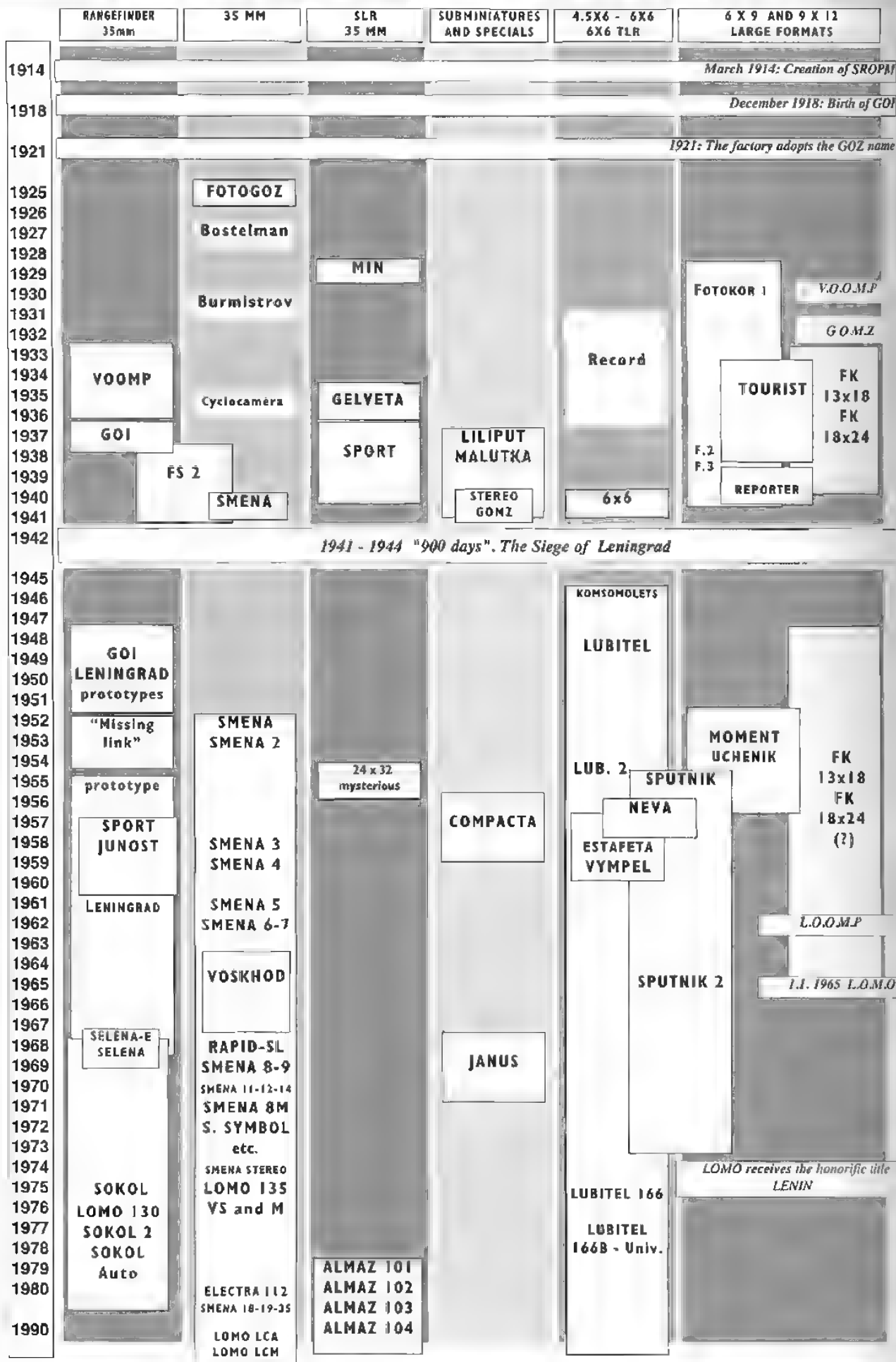
He conceived, among others, the BTA-6M telescope equipped with a mirror of 6m diameter. He earned the Lenin Prize for having built 14 extraordinary devices between 1947 and 1956. Brilliant and, like his brother, rich in the southern charm which often characterizes those with Armenian roots, he was loved by all during his 49 years in the GOMZ-LOMO complex.

His children and grandchildren followed their uncle's and father's footsteps and perpetuated the name of ionissiani in the LOMO and BelOMO enterprises.

Leon Andronikovitch Ionissiani, the chief development engineer of the central research bureau of BelOMO at Peleng, was an important specialist in the field of photogrammetric equipment used in the interpretation of data received from orbiting satellites, (spy satellites and others...)



# FAMILY TREE GOMZ-LOMO 1914-1990



# GOMZ-LOMO

# ГОМЗ.ЛОМО

ЛЕНИГРАДСКОЕ ОПТИКО МЕХАНИЧЕСКОЕ ОБЪЕДИНЕНИЕ

From September 1941 to January 1944 German troops lay siege to Leningrad. (See p. 33)

April, 1945, the Red Army takes Berlin.

May, 1945, Nazi Germany surrenders, marking the end of the "Great Patriotic War."

In the part occupied by the Soviets, what is left of the bombed German factories, in particular the Zeiss factories, are systematically dismantled, the raw materials - steel, copper, aluminum - are recovered, and the machines disassembled.

To this quite legitimate organized pillage must be added the out-and-out race by both the eastern and western allies to recover the German savants and engineers, particularly the physicists and opticians.

Some of them are "delivered" at the request of the Soviet authorities as war reparations; among these mechanical-optical engineers are "distributed" to the GOMZ factory in Leningrad, to the KMZ factory in Moscow, and to Arsenal in Kiev.

In 1955 at the time of the liberation of the German prisoners of war, most of these men are "convinced" to stay at their posts. The undeniable knowledge of the GOMZ engineers, linked to the traditional German know-how, will allow the rapid restarting of industrial production, especially in the photo industry, even in a country ruined by war.

As early as 1946, flush with the military experience acquired during the war, with the reconstruction of buildings, the restructured factory, reserves 95% of its activities for military optics and micromechanical devices, but also in the medical sector.

Microscopes and other high precision "optical instruments" such as periscopes for the Navy and special lenses for "very special" still and movie cameras, are produced there under the direction of the Ministry of Defense, later the Ministry of Space.

In parallel, and far more modestly, a 6x6cm twin-lens reflex known as the KOMSOMOLETS, derived from the Voigtländer Brilliant, entered into mass production in 1946, followed in 1950 by the LUBITEL.

Then in 1952 came a new "amateur" 35mm camera, the SMENA. In 1958 the Leningrad, a 24x36mm motorized camera, received the Grand Prize at the World Exhibition of Brussels in Belgium.

The factory had by then rediscovered its prewar aura. Optical glass, made from sands and rare earth compounds coming from the Baltic region, are calculated and (individually) checked by the GOI, still active even now at the end of the 20th century. Let me remind you that this enterprise for the creation, calculation, and the quality control of optical glass, is probably the oldest optical workshop in Russia.



Main facade of Lenin-LOMO in Leningrad, secretly photographed by the author in 1988. Above the building is written: "SLAVA KPSS" (Glory to the Communist Party of the Soviet Union.)

In 1957 the factory helps a new production unit get started in Minsk, in Belorussia. The Minsk Mechanical Works, bearing the name of the academician S. I. Vavilov (77) works in both the military and civil sectors in close col-

laboration with GOMZ and later LOMO, under the name of BelOMO.

In 1962, GOMZ becomes LOOMP (Union of Optico-Mechanical Enterprises of Leningrad). The LOOMP logo appears briefly on a few SMENA-8 cameras, on their export version, the COSMIC-35, as well as on a version of the amateur ciné camera, the Sport-2.

On January 1st, 1965, this industrial complex becomes LOMO, (the Leningrad Optico-Mechanical Union.) This period marks for LOMO (as for KMZ) the time of great and beautiful creations in the field of photographic cameras.

In 1974, the factory receives "LENIN." in name

On June 12th, 1991, Leningrad becomes, once again, St. Petersburg.

Presently, although LOMO is more eager to advertise its various military and paramilitary production on the Web, along with numerous variations of telescopes and binoculars and night vision devices, it is also the factory which, in 1976, constructed the world's largest telescope in the Caucasus, with a 6 meter diameter mirror weighing 42.7 tonnes.

LOMO also produces medical optics, from operating-room lighting to microscopes. It is also one of the Russian enterprises which respects the international norms ISO 9001 and 9002.



Smena 1- L10.

Conceived by I. Shapiro, the "father" of the prewar Smena, the new model is a 24x36mm bakelite camera, of rustic appearance but perfect finish. Its first merit is that it is not a copy of any other camera; its second is the choice of the 40mm focal length lens, with corresponding greater depth of field and consequent forgiveness of focusing errors. Smena will later identically copied in China under the names CHANG (IANG and HUA SHAN). (28)

## **SMENA 1952 - 1960**

"New Generation" or "Changing of the guard". **L10**

24x36mm on 35mm film in special one-way cartridges, eliminating rewinding. Film advance by knurled knob. aluminum frame counter.

A simple internal ratchet mechanism provides frame stops. Newtonian viewfinder.

Central shutter ZT 5 (adaptation of the Lubitel shutter)

Speeds: 1/10 - 1/200s ; B.

Lens: Triplet T-22, (Lubitel optical formula) 4.5/4cm.

Scale focusing from 1.3m - ∞

Serial number and identification engraved in red on lens faceplate.

Accessory: rangefinder.

Variants:

L11 - With black finished lens.

L12 - black plastic advance knob (transition to Smena 2).

L13 - Body of Smena 4 (reduced finder).



Smena 2- L20. Document M. MASSON

## **SMENA-2 1953 - 1956 or 1955 - 1961(?)**

**L23**

35mm camera identical to Smena but as a rule synchronized

Shutter ZT-8 (Lubitel 2) with self timer.

Multiple Variants:

L21 - totally identical to Smena, sometimes with film memo on the knob, sometimes with synch, sometimes without.

L22 - With frame counter in aluminum, and black lacquer lens/shutter faceplate.

L23 - With fluted plastic frame counter, and black lacquer lens/shutter faceplate.

L24 - With black lens surround and white shutter faceplate.

L25 - With black plastic film advance knob.



Smena 3- L30. Document J. DANIEL

## **SMENA-3 1958 - 1960**

**L30**

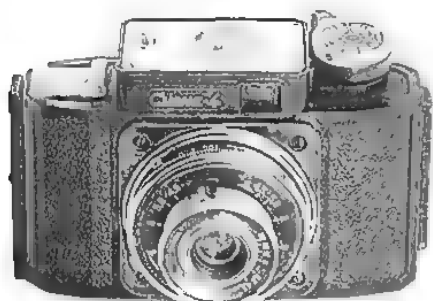
Identical to the model 2 but with redesigned film advance mechanism. Film speed reminder in DIN/GOST on film advance lever.

Camera serial number engraved on the camera back release bar.

Variants:

L31 - SMENA-3 identical to the SMENA-2, without film advance lever, with indicator.

L32 - With aluminum frame counter.



Smena 4 L40. Document J. DANIEL

## **SMENA-4 1958 - 1961**

**L41**

Identical to the model 3 but, as a rule not synchronized.

Top slightly redesigned, smaller viewfinder.

Variants:

L41 - Synchronized and with retarder.

**SMENA 5**      **1961 - 1962**      **L50**

The body is entirely redesigned by I. Shapiro.

Designed to use plastic instead of bakelite, the considerably "younger" looking camera has plastic top and rear panels allied with the bakelite body. Newtonian viewfinder.

Grip shape similar to Leningrad's (L230).

Knurled advance knob flush mounted under top plate.

Speeds: 1/30 - 1/250s.; B. Synchronized. Shutter speed engravings coupled with EV scale (4-5-6-7-8). Serial number under shutter housing.

Lens T-42 5.6/40mm. With GOMZ logo.

Strap lugs on body

Sunshade reverses on lens to provide protection.



**Smena 5** Document A. Berry

**SMENA 6**      **1961 - 1969**      **L60**

Identical to the model 5 but with more advanced technical characteristics: shutter 1/15 - 1/250s.; B. Synchronized.

Lens T-43 4/40mm. With LOMO logo.

Variants:

L60 - SMENA 6 in Cyrillic, lined face plate (as L75)

L61 - SMENA 6 in Cyrillic, "classic" face plate.

L62 - SMENA 6 in Latin letters; no strap lugs.



**SMENA 7**      **1969 - 1971**      **L70**

Identical to the model 6, simplified, without self-timer.

L70 - SMENA 7 in Cyrillic characters

L72 - SMENA 7 in Latin letters

**SMENA 7**      **1969 - prototype**      **L75**

Similar to the model 6, but this variant of the Smena 7 has a selenium cell instead of the Smena nameplate, meter scale on the painted metal top plate, and allows for a film rewind knob.

On this prototype the shutter is that of Smena 6.

**Smena 7: prototype with lightmeter**

Document M. Kostjukovski

**SMENA 8**      **1969 - 1971...**

Modified by A. Avdonine.

Pop-up rewind knob.

Lens. T-43, shutter 1/15 - 1/250s.; B.

The Smena-8 has the biggest production of all the Smena models.

Dimensions: 120x80x60mm.

Variants of the SMENA 8: Silkscreened logo.

L81 - SMENA 8 in Latin letters.

L82a - COSMIC 35 in several versions.

L82b - COSMIC 35 with LOOMP logo instead of GOMZ or LOMO logos (rare)

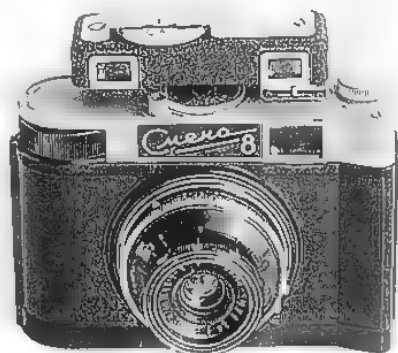
L83 - GLOBAL 35. (Export)

L84 - REVUE (Foto-Quelle - Germany)

Accessory:

New rangefinder "SMENA" with different finishes.

**L80**



**SMENA 9**      **1969 - 1971**

Identical to the model 8, but without self-timer.

**L90**



**Cosmic 35 with LOOMP logo.**



**Smena 11 prototype.** Document D. Scheiba

## SMENA 11

Announced c.1967

L110

Plastic body with more angular edges.

Bi-format 18x24mm or 24x36mm, selected via a simple sliding mask in the viewfinder.

Bright-line finder centered on lens axis, with fixed half-frame indicators

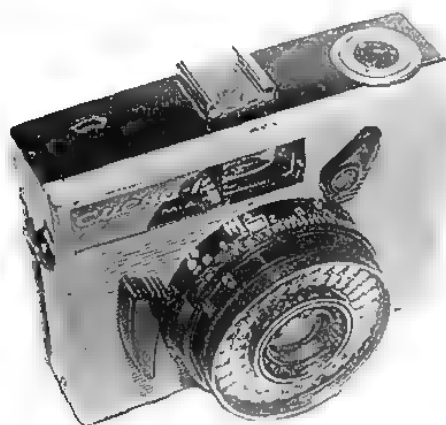
Central shutter. Speeds 1/30 - 1/250s.; B

LOMO Industar-73 lens f:2.8/40mm

Advance lever under the body; 36 or 72 view frame counter.

Accessory shoe on top plate centered on lens axis.

Dimensions: 121x92x62mm



**Smena 12 prototype.** Document M. Kostjukovski

## SMENA 12 AUTOMAT

Announced c.1967

L110

**Prototype or pre-production model.**

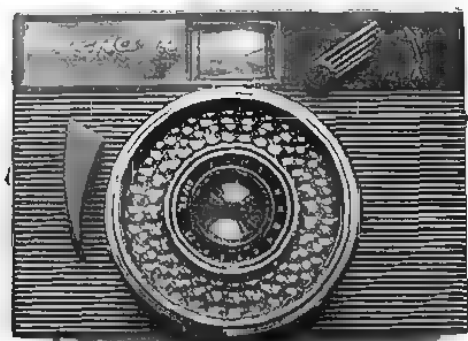
Identical to SMENA 11, but with lightmeter surrounding lens.

Shutter speed priority automation with single speed 1/60s.; B shutter

Diaphragm scale visible in finder.

LOMO Industar-73 2.8/40mm lens

*For the Russians, according to the Orthodox Christian tradition, the use of number 13 is forbidden, as it recalls the Last Supper of Jesus and his apostles. Thus we do not find any cameras using the model number 13.*



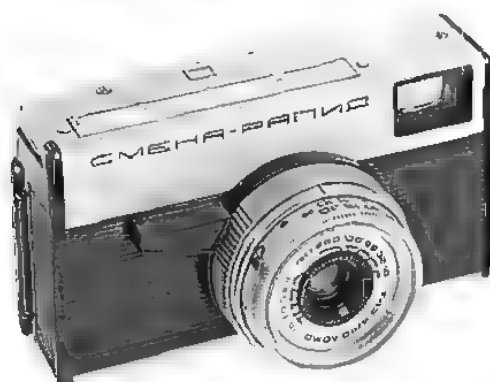
**Smena 14 prototype** Document M. Kostjukovski

## SMENA 14 AUTOMAT

Announced c.1967

L120

Identical to the SMENA 12 but with shutter 1/30 - 1/250s, and redesigned control knobs.



## SMENA RAPID 1968-1971

**SMENA RAPID**

L130

Conceived by A. Avdonine.

New plastic body taking only the new Agfa Rapid or Orwo SL film cartridges, giving 12 views.

Shutter: 1/15 - 1/250s.; B

Settings by symbols - clouds to sunshine - visible on the top plate.

Newtonian finder.

T-43 lens 4/40mm. Focus 1m - ∞

New oversized advance lever on front of camera

Very few made, because there was no Soviet film available on the market except Orwo SL (Schnelladesystem /Quick-Loading), 12 views).

**SMENA SL 1970 - 1977 Rapid+SL= ~ 590 000 ex. L140**

Very close to the Smena Rapid, with same specifications. Equipped with a frame finder and accessory shoe. SMENA printed in Cyrillic and Latin characters on the front.

**Variants:**

L143 - black anodized finish on the lens body.

L141 - SMENA SL only in Roman letters. aluminum lens body.

L142 - COSMIC 35M (red letters. see also L150)



**Signal S.L. prototype** *Document M. Kostjukovsk*

**SMENA SYMBOL 1970 - 1977**

**Prototype.**

Plastic and painted metal body.

Shutter/lens assembly of the Smena SL.

**SMENA SYMBOL 1971 - 1993 ...**

quick cocking version with shutter coupled to film advance.

Symbols repeated on black lens barrel.

reduced size viewfinder displaced to allow a rewind crank. Film speed memo on camera back.

**Variants:**

L161 - bronze colored lens.

L162 - black logo; white letters.

L163 - COSMIC SYMBOL in Cyrillic characters.

L164 - COSMIC SYMBOL in Roman letters.

L165 - SYMBOL 136 (not series produced).

L166 - REVUE-135 Symbol (1975)

L167 - SMENA SYMBOL engraved on red background.

**SMENA E 1970 - 1977**

**Prototype.**

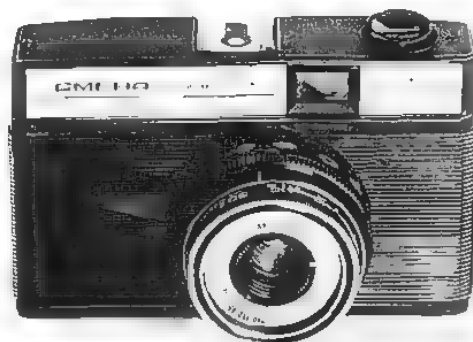
SMENA SYMBOL body with CdS meter.



**L141**  
**Smena SL (Schnelladesystem)** see also p.141



**Smena Symbol prototype** *Document M. Kostjukovski*



**Smena Symbol (production version)**

**Smena E** *Doc. M. Kostjukovski*

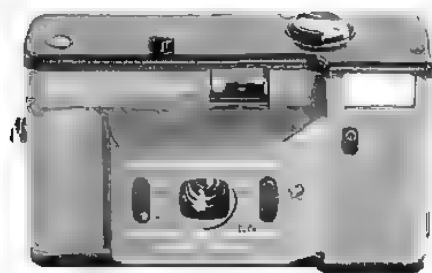


**L169**





**Smena 8M** production model.



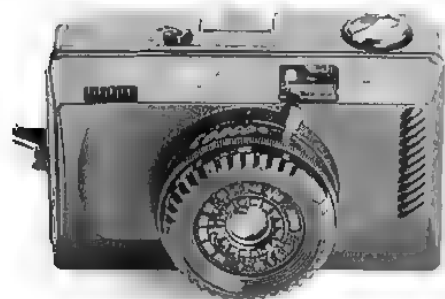
**Smena 35.** Document J. Daniel



**Smena 19**



**Smena 20** Document L. Bolashevich



**Smena 35** Document J. Daniel

## **SMENA 8 M 1970 - 1993....**

**L150**

Basis of a new series of SMENA bodies, beginning with a redesigned SMENA-8, of which it keeps the specifications.

lens: T43 - 4/40mm. Speeds 1/15 - 1/250s. + B. Life-size viewfinder.

*Variants:*

**L150** - SMENA 8M Bilingual markings, black body, satin aluminum lens.

**L151** - SMENA 8M markings in red.

**L152** - SMENA, body and lens completely in black. (c 1988).

**L153** - COSMIC 35M.

## **SMENA 18 1985 - 1993... Both models ~ 75,000 units**

**L170**

## **ZENIT 35F 1985 - 1993...**

**L171**

Simplified 35mm compact. Fixed focus 5.6/35mm lens. single-speed shutter 1/125s. Underexposure signal. Built-in flash with ready light.

*Variants:*

**L170** - SMENA 18 in Cyrillic characters

**L171** - ZENIT 35F markings in Roman letters on a red background.

**L172** - ZENIT 35F markings on a black background.

**L173** - SMENA 18 in Roman letters, red body.

**L174** - SMENA 18 in Roman letters, black body.

*The ZENIT 35F family is rounded out in 1990 by models F1 and FM.*

## **SMENA 19 c.1985 - 1989... Fewer than 10,000 units**

**L180**

Conceived by N. Panchenko

Production begins end '85; it is a newcomer to the market in '86.

Successor to the SMENA SYMBOL.

The 4/40mm lens has a new appearance.

Logo with the Leningrad coat of arms near the lower part of the body.

*Variants* : with and without film memo.

## **SMENA 20**

**L185**

Announced in a text-only document at the 1990 Photokina, this camera seems to have been produced in very small numbers.

It has the same technical characteristics as the SMENA SYMBOL (L168) but rebodied and only half the weight (200g. vs. 400).

Triplet lens 43-1 40mm f:4. shutter 1/15 - 1/250s.

Synchronization by "Hot Shoe".

## **SMENA 35 c.1990 - 1993...**

**L190**

Esthetic modernization of the SMENA 8M.

*Variants:*

**L191** - blue or green line emphasizing the logo.

**L192** - Body in titanium grey, back and lens in black.

**L193** - Markings in Roman letters.

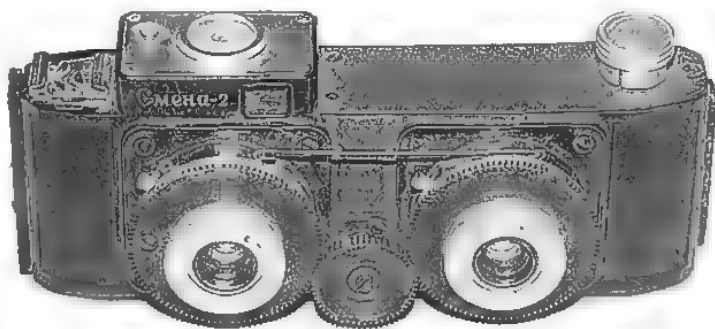
*From 1952 to 1992, the production of the SMENA family must be estimated in the tens of millions.*

## **SMENA STEREO c.1960**

**L201**

Russian stereo enthusiasts (or, as we'll call them, Slavostereophiles) discovered in the October, 1960 issue of *Sovietskoye Foto* an article which described how to make, at very low cost, one's own stereo camera in a country which didn't produce a single one.

"You just need to saw off the left side of one Smena and the right side of another to create, once the two are joined and the shutters coupled together, a stereo camera with a binocular viewfinder, at the best possible price to quality ratio."



**Smena stereo by the "Sov.Foto."method !** Document P. Coehn - Leica Shop-Wien

## **SMENA STEREO c.1970**

**L202**

35mm 24x36mm STEREO, metal prototype.

Axial Galilean viewfinder.

Large cocking knob; rewind by a smaller knob.

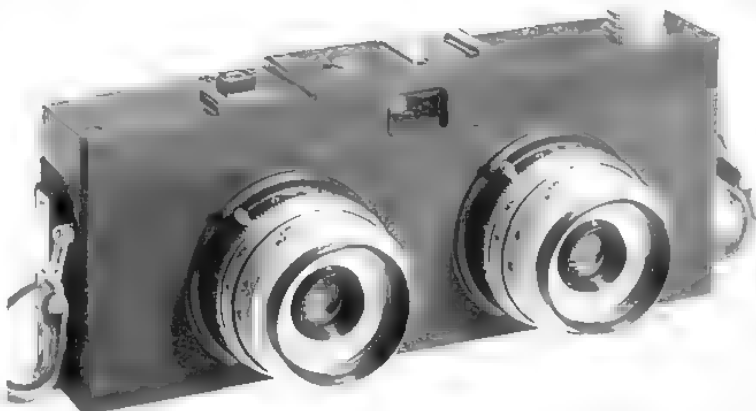
Central shutters (Smena 8M) uncoupled to cocking mechanism. Speeds: B-1/15 - 1/250s.

Single shutter release operating both shutters.

5.6/40mm T-43 lenses with sunshades.

Speed and focus settings by symbols.

Never series produced.



**Smena stereo prototype** Document D. Scherba

## **SMENA STEREO c.1970**

**L205**

35mm 24x30mm STEREO, plastic.

Axial Galilean viewfinder.

Lever cocking, crank rewind.

Central shutters coupled to cocking and shutter release mechanisms.

Speeds: B-1/15 - 1/250s, engraved on the left shutter. 2.8/40mm Industar-72 lenses, with marked hyperfocal distance (3m) Diaphragm: 2.8 - 22.

Never series produced.

**Variant:**

L206 - Identical body, with speeds B; 1/15 - 1/250 s.

engraved on right lens, with symbolic diaphragm

settings on left lens.



**Smena stereo** Document M. Kampf

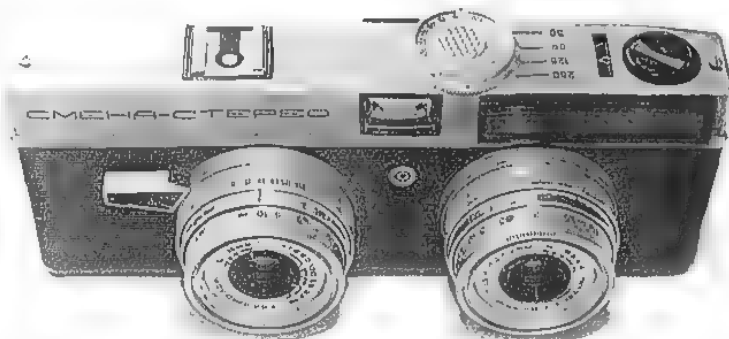
## **SMENA STEREO c.1970**

**L208**

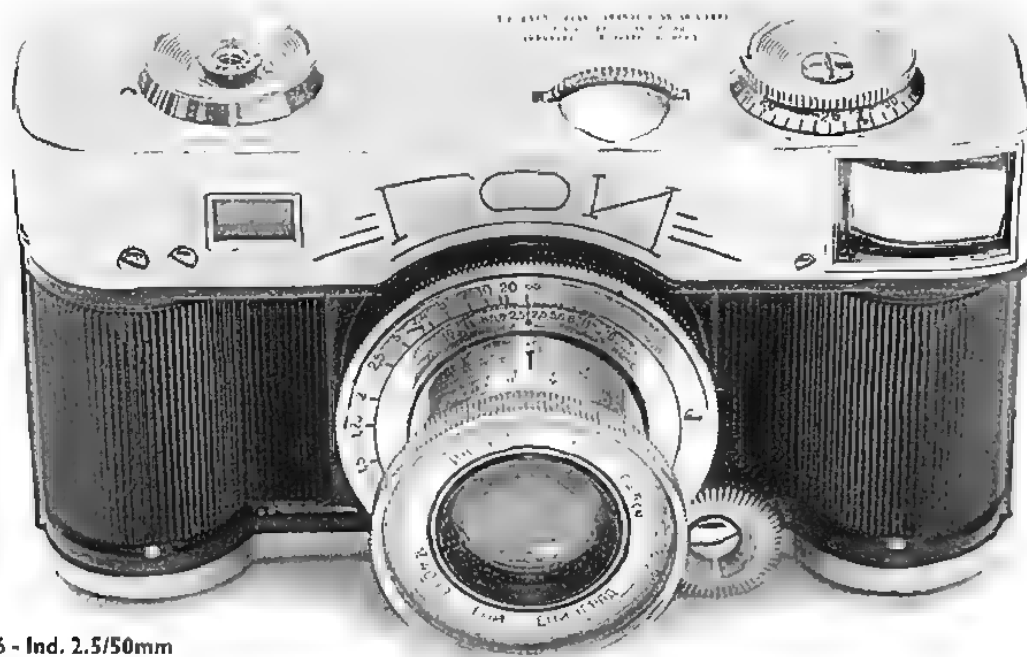
35mm 24x30mm STEREO, plastic and metal, with uncoupled light meter (Gost 16 - 500).

Lens/shutter assemblies from Smena SL, with flash synch.

Never series produced.

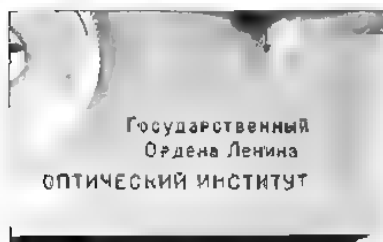


**Smena stereo prototype** Document M. Kostjukovski



**GOI #1686 - Ind. 2.5/50mm**

Документ Michael Kampf



G.O.I. of the "Order of Lenin", engraving on the top plates of L221 and L222.

*These first versions of the Leningrad remained mysterious for a long time. Described by A. A. Syrov as, as a classic camera, or one which would become a classic (1954), its absence perplexed the world of iconomechanophiles in the West after the camera had been presented in 300 Leica Copies and the first edition of The Authentic Guide... (21) in which the camera's existence was confirmed by several sightings.*

*The sudden appearance of these marvels gives a clear look into the systematic emptying of the attics and back rooms of the great ex-Soviet enterprises.*

*Let us simply enjoy having a chance to admire them....*

#### **GOI c.1948 ~ 1949 (?)**

#### **L221**

**Conceived by H. Fribbe (according to SYROV)**

Engraved on the top plate: GOI (State Optical Institute) of the Order of Lenin. 24x36mm with wide-based coupled rangefinder (like the Zeiss Ikon Contax.) Silvered, curved viewfinder window. Circular viewing eyepiece.

Interchangeable collapsible GOI - Industar 2,5/50mm (#4099) in 40.5mm x 0.5 screw mount.

Internal focusing helicoid (like that of the OPL Foca PF2); focusing via a knurled wheel (Contax style) on the lower left side of the lens mount.

Cocking by lateral motion of a folding trigger (Leicavit style.) Metal curtain guillotine shutter, which explains the two semicircular bulges on the camera front, necessary to house the two film cartridges. Non-slip surface, giving an excellent grip on the camera.

Shutter speed selector: vertical knurled disk turning on an axis parallel with lens axis. Edge projects above camera top plate, with a shaped fairing on front. Speeds: B-1s - 1/500s.

Pressure plate retracts during film advance, per 1930 Burmistrov patent (p.18)

Single claw film advance capstan. Frame counter beneath the rewind button (!)

Removable back (Contax type) with double locks.



**GOI #1686 - Industar 2.5/50mm**

Документ Michael Kampf



**LENINGRAD # 2088**

Document Milos P. Mladek

Photo P. Bohuski

## **GOI-LENINGRAD c.1948 ~ 1949 (?)**

**L222**

Body very close to that of the GOI. Top plate engraving identical.

RF coupled, collimated 24x36mm, with rectangular viewfinder ocular. 50 - 80 - 135mm fields covered.

GOI-Jupiter-3 50mm f:1.5 lens, attached by two claws 180° apart, actuated by two buttons above and below the lens-mount.

Internal helicoid focusing cam via lever. Folding lateral trigger-type advance lever

Metallic curtain guillotine-type shutter, like the GOI. Shutter speed selector on a vertical

knurled disk projecting above top plate, with a fairing in front of it.

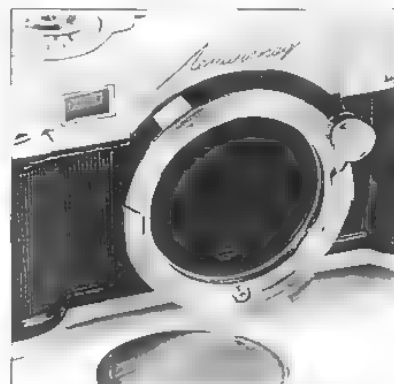
Speeds: B-1s - 1/500s.

Frame counter protected by a fairing under the shutter release button.

Accessory shoe; strap lugs

Dimensions: 82 x 53 x 138mm; weight 760g.

planned interchangeable lenses: Orion 6/28mm, Uran 2.5/35mm and 2.8/80mm.



**Bayonet mount of Leningrad L222**

Document Milos P. Mladek

**Back removed: retractable pressure plate of Leningrad L222.**

Document Milos P. Mladek

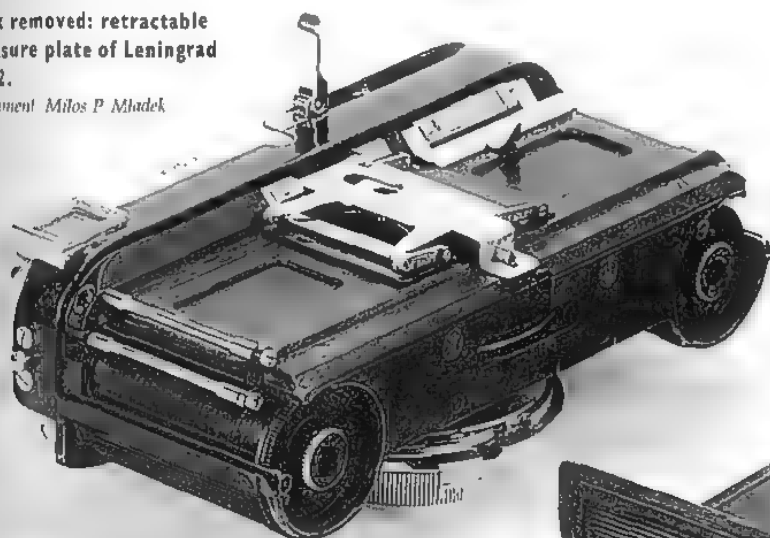
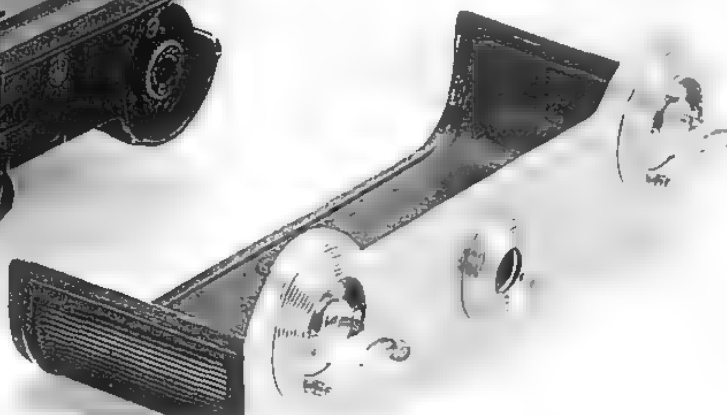


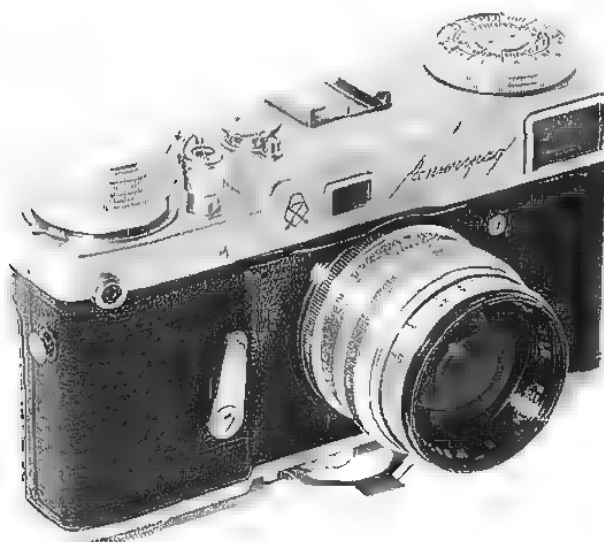
Photo: P. Bohuski



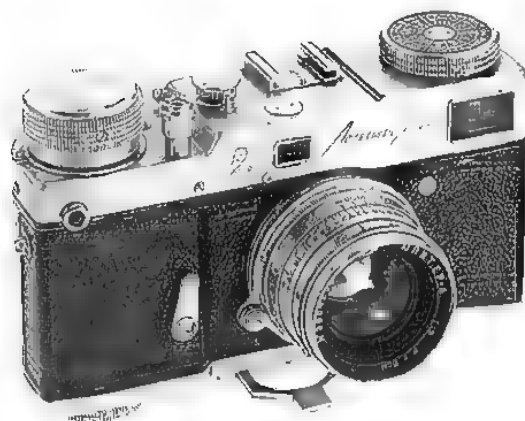
By Milos P. Mladek.



"The Missing Link." Prototype of the Leningrad.  
Document Milos P. Mladek.



Leningrad prototype in almost final form.  
Document Milos P. Mladek



L230 - Leningrad

## LENINGRAD c.1952

L225

"The Missing Link" Prototype - Conceived by I. Shapiro. (34)  
The first impression is that there is little connection between this camera and GOI L221 or Leningrad L222. The base of the rangefinder is shorter, the appearance is more classical, and the camera is motorized

However, this veritable missing link has the same shutter speed selector knob, now moved back behind the zeroing button of the frame counter, the frame counter itself being placed in front of this knob but this time with a vertical-running metal shutter (in 1952 !). (30 bis)

The lens mount, with an original bayonet (like the Alpa reflex c. 1945). Thus, even if some of the details remind one of the L222, this camera shows signs of the future series-produced Leningrad And if the attics of LOMO have not yet been completely emptied, maybe the future still holds some neat little surprises for us.

## LENINGRAD 1955

L228

Prototype - Conceived by I. Shapiro.

This prototype of the "classic" Leningrad is hand-made but just about in final form. The several minor differences are the height of the baseplate, 2mm lower, and the position of the release button, which was judged to be too close to the knurled button of the mechanical motor. It gets the new short base rangefinder developed for the Leningrad L225.

## LENINGRAD 1956 - 1968

L230

Conceived by I. Shapiro.

c.76,000 units.

Full frame 35mm with coupled rangefinder.

Having received the "Grand Prix de Bruxelles 1958" at the Universal Exposition, the LENINGRAD was distributed in the USA and in Europe but never had the success expected of it.

Body molded with left hand grip pattern.

Combined Galilean viewfinder/rangefinder (0,68x) with brightline field markings for 35mm (full field), 50, 85 and 135mm lenses, and diopter correction.

57mm base rangefinder with curved cam follower. Adjustment hatch on the top plate above the RF window.

Focal plane shutter activated by a spring motor, giving up to 12 shots per winding, at about 3 shots per second.

Spring located in the winding knob.

No geared film advance capstan.

Speeds: B; 1s. -1/1000 s. Sync. 1/25s.

Lever for blocking the advance motor.

Synch delay adjustable 5 - 20 milliseconds under the advance knob. automatic frame counter

Self-timer (9 - 15 s.) by lever, like Contax/Kiev.

Serial number in accessory shoe. (31)

Rewind button with GOST film speed memo dial

To rewind the film, the motor must be de-clutched by unscrewing the button around the base.

Removable back with opening keys which also opens the film cartridge allowing motorized action. Stabilizing foot around the tripod bushing, like the Contax.

**Lenses for 39mm screwmount:**

Jupiter-8 2/50mm KMZ, Jupiter-3 1.5/50 mm KMZ, ZAGORSK or MMZ (less common) The LENINGRAD takes the entire range of 39mm screw-mount lenses (see KMZ p.132 - 135).

**Variants:**

L230 - Leningrad with two screws on the front plate to the right of the lensmount.

- advance knob with simple knurling
- "Sdelano B CCCP" in cyrillic characters.

L231 - later Leningrad with 4 screws on the front plate around lensmount.

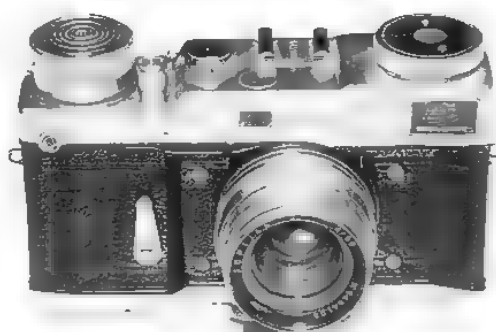
- updated shutter speeds: B- 1s. -1/1000s. Sync. 1/30s.
- winding knob with chrome grooves.

L232 - Engraving in Roman letters ( c. 1964 - rather rare) (32)

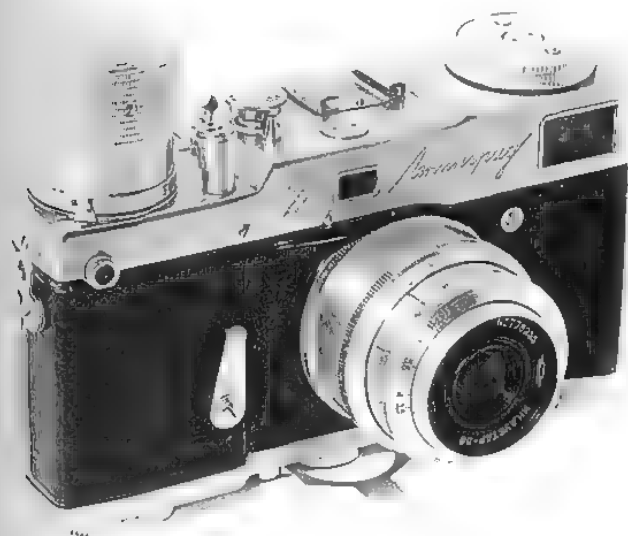
L233 - Engraving LOMO in lieu of the GOMZ logo. (c. 1968: rather rare)



**L231 - Leningrad**



**L232 - Leningrad** - Doc. Milos P. Mladek



**Leningrad with high capacity motor**

Document Milos P. Mladek

## **LENINGRAD**

## **L238**

Leningrad identical to model L231 but with two extra switches: speed selector:

Located above the self timer, to select 3 or 6 images per second; a rectangular switch to select single shot or sequence operation.



**Leningrad with sequential motor**

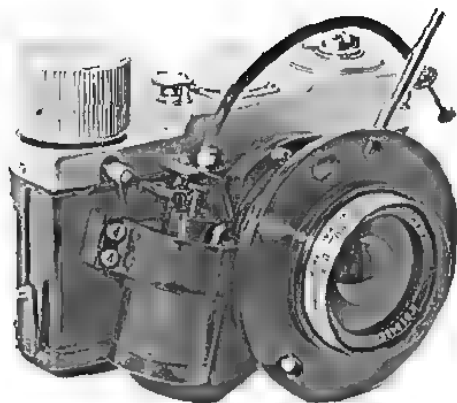
Document Milos P. Mladek

## **LENINGRAD**

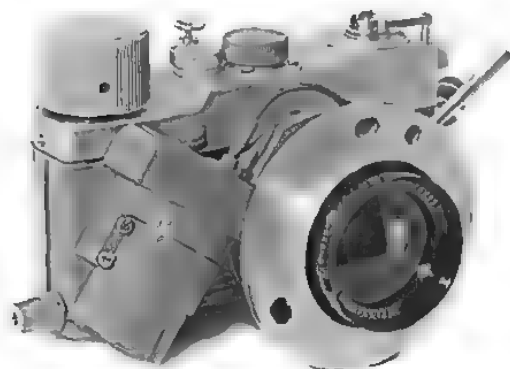
## **L235**

Leningrad identical to model L230 but with oversized motor allowing 50 views.

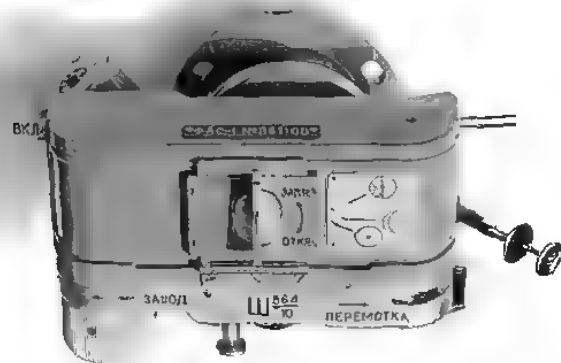




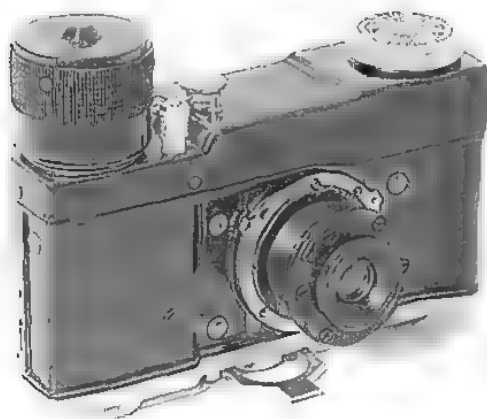
**L241 - Leningrad F.A.S**  
Document: Milos P. Mladek



**L242 - Leningrad F.A.S**  
Document: Milos P. Mladek



Document: P. Bokriski.



**Leningrad Police Special**  
Document: Milos P. Mladek

## LENINGRAD SPACE PROGRAM - FAS

L241 et L242

### ФАС 1 №1

MIR 2.8/37mm lens (KMZ "BRUSSELS GRAND PRIX 1958" )

Full frame 35mm without viewfinder.

LENINGRAD body superbly redesigned for use under extreme conditions.

All manual controls are oversized and clearly marked: cocking, rewind crank, back opening key ... everything needed to simplify using the camera upside-down.

### FAS first model

L241

Leningrad body without covering, black finish, chrome top plate.

Two-speed focal plane shutter, with manual and electric switch releases.

MIR-1 2.8/37mm lens (chromed reflex version K1625) in a special mount with diaphragm adjusting lever and control plate surrounding lens.

### FAS second model

L242

Leningrad body similar to L241 without covering, gray finish with chrome top plate and some detail differences.

Two-speed focal plane shutter, with electric switch release.

MIR-1 2.8/37mm lens (black reflex version K1626 or Zg60 ) in a special mount with diaphragm adjusting lever and control plate surrounding lens.

ЗАВОД = ZAVOD = Works, here: cocking

ПЕРЕМOTKA = PEREMOTKA = film advance, but here for rewind

OTKP = Open

ZAKRT= Closed

## LENINGRAD "POLICE SPECIAL"

L245

Model using the body of the L235, but taking 24x24mm negatives; no viewfinder, rangefinder, or accessory shoe.

Two speed shutter: "I" and "B".

*Reputed to have been given to the police, this black lacquer model has no body covering.*

## LENINGRAD ACCESSORY : UNDERWATER HOUSING "KRAB" c1960

Designed exclusively for the Leningrad  
All functions - winding the motor, focus and diaphragm setting are possible.

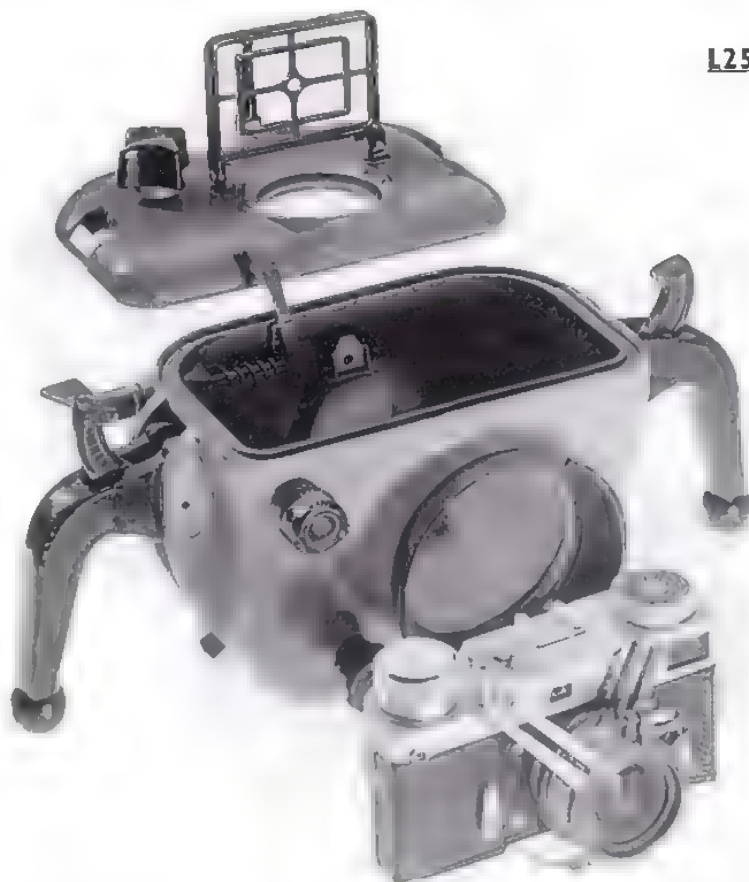
Lenses planned:

- Jupiter 12 2.8/35mm (47° angle underwater vs. 63° in air.)
- Orion 15 6/28mm (56°)
- Russar MR2 5.6/20mm (70°),
- Hydorrussar-3 4/20mm (70° angle underwater), corrected for photography at very close distances (see p. 177).

Variant:

L251 - Identical housing but for use with FED or with ZORKI. (see p. 177).

L250



## AKVAKON

## AKBAKOH

By Milos P. Mladek.

**AKVAKON-1**

**L255**

**AKVAKON-2** c1996

**L257**

AKVA = AQUA = Water, KON, maybe for Nikon...

Underwater camera body like Canon or Minolta

"Weathermatic" but with a hint of the "Calypso-Nikonos" coming through the name.

"weatherproof" full frame 35mm or for underwater use to a depth of 4m.

injection molded aluminum body, yellow paint

Motorized cocking and film advance.

LOMO 3.5/35mm lens. Focusing by twisting the tab next to the lens.

Closing and sealing by two keys

Not being produced (*for the time being, maybe.*)



# SPORT - JUNOST

# СПОРТ - ЮНОСТЬ

Both aimed at the mass market, the Junost and Voshkhod share their relatively low production numbers (for a country like the USSR) and their particularities. Only the Voshkhod was exported, with some success.



Sport # 570001

Document Mark Kostjukovski



Sport-Junost 3.5/40mm lens Soviet Press



Junost with 3.5/45mm lens .

## **SPORT c.1957 "SPORT" L260**

Prototype or preproduction version of the Junost, reprising the name of its glorious ancestor, the prewar "Sport."

First Russian camera with lever advance.

3.5/45mm lens. (# 570001)

shutter 1/10 - 1/250 s.

A lever on the notched scales of the lens barrel couples diaphragm and shutter speed in exposure values (EV 6 - 17).

Variant:

L261 - Prototype with 3.5/40mm lens (illustrated in Sovetskoe Foto).

## **JUNOST 1957 - 1960 "YOUTH" L265** about 50,000 units produced.

35mm 24 x 36 with coupled rangefinder. Similar to the "Sport" L260 but with redesigned lensmount plate, body shape, and top plate.

Molded body, finished to a "rustic" level, with removable take-up spool (cartridge to cartridge).

Removable back.

Galilean viewfinder; separate viewing and focusing oculars. Rangefinder coupled to focusing helical by cam and lever.

For optimum contrast, the primary rangefinder image is pink, the secondary rangefinder spot yellow.

RF adjustment under a threaded hatch on the top plate.

Shutter cocking by lever, coupled to film advance.

T-32, 3.5/45mm fixed lens

ZT-12 central shutter, speeds 1/8 - 1/250s. flash sync; self timer.

A lever on the notched scales of the lens barrel couples diaphragm and shutter speed in exposure values (EV 7 - 17) (see p. 45 Neva).

Rewind knob with film speed memo dial in GOST/DIN.

This camera is "signed" GOMZ.

Variants:

L266 - four support bumps on bottom plate.

L266 - six support bumps on bottom plate.

L268 - narrower rewind knob.

# ВОСХОД and VOSKHOD STEREO

## VOSKHOD 1964 - 1968 "SUNRISE"

L270

about 50,000 units produced.

35mm 24 x 36. First Russian camera having a selenium meter with needle visible in the finder.

Molded body, featuring equally comfortable handling in horizontal and vertical positions.

Bright frame Galilean finder with parallax marks for close distances.

Film advance and shutter cocking by moving a cursor

Exceptionally smooth operation

Central shutter B, 1 - 1/250s. flash synch.

Linkage between diaphragm and shutter speeds can be uncoupled.

T-48 2.8 / 45mm lens. Scale focusing by symbols.

Meter sensitivity: 12 DIN (11 GOST) - 27 DIN (350 GOST).

rewind knob with flush folding crank. Manual reset frame counter.

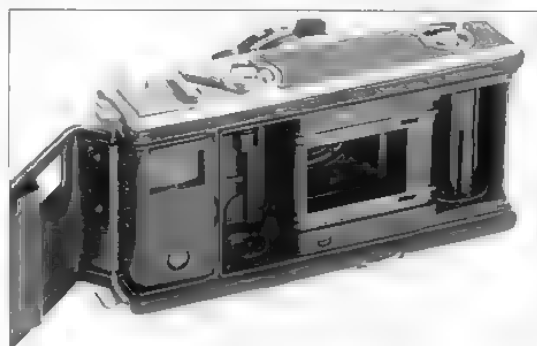
This camera is "signed" LOMO.

*Variant:*

L271 - "Voskhod" in Roman letters.



Voskhod



## VOSKHOD STEREO

*By Milos P. Mladek.*

Prototype 35mm camera for full frame STEREO pairs, with a switch on the top plate for selecting MONO.

Centered viewer with projected frame lines, selenium meter needle indicator, and pendulum horizon indicator in the center, all projected using the van Albada type viewer.

Single lever wind and cocking mechanism for both shutters.

Frame counter

individual shutter speed selectors.

the shutter / lens assemblies come from the Voshkhod.

shutter releases and diaphragm settings coupled between the lenses.

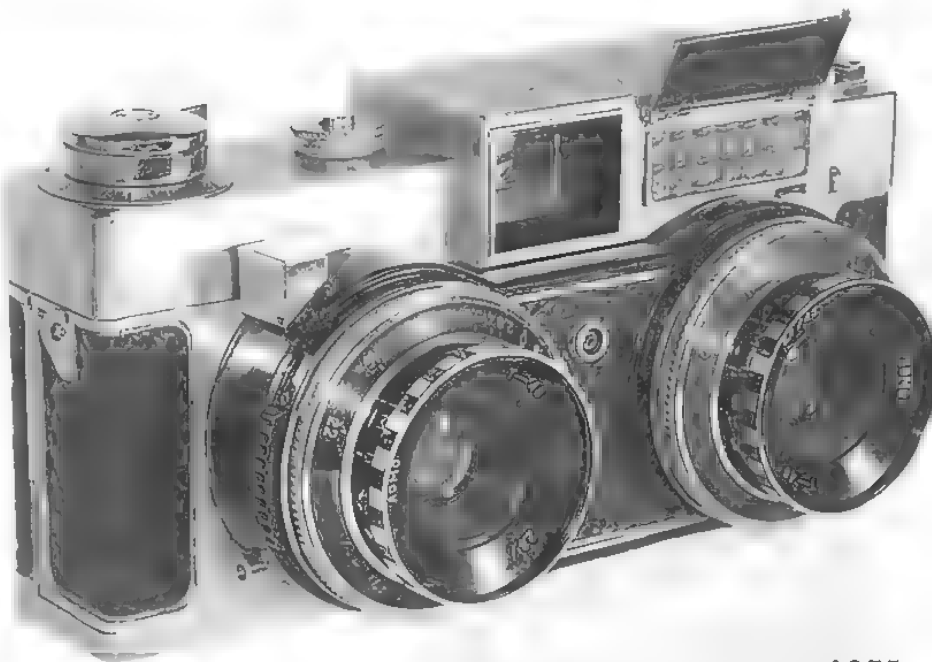
Individual focusing of the two T-48 2.8 / 45mm lenses.

75mm interlens distance.

Accessory shoe.

Contax-type removable back with adjustable pressure plate.

Built-in film cutter like the Exakta.



L275

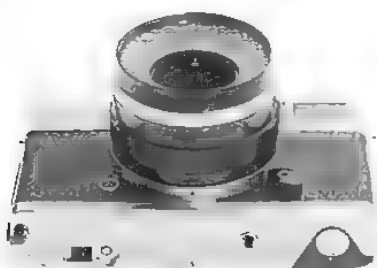
Voskhod Stereo # 700001

*Document Milos P. Mladek*

With its lens barrel containing an "eccentric" lens surrounded in a light meter element, its left-handed shutter release located low on the body, the SELENA is a strange beast. The early concept work was begun in parallel with that of the production of the more classic SOKOL with its CdS meter, the SELENA line was never produced in series.



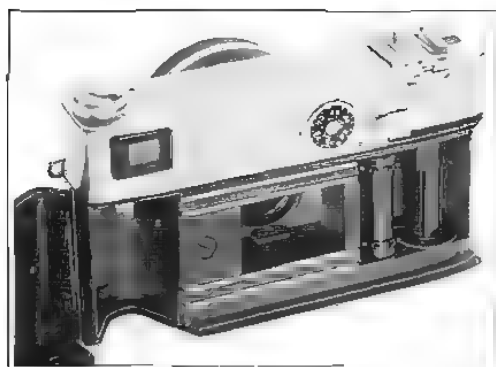
**SELENA-E AUTOMAT** Document Dieter Schieba



**SELENA-E AUTOMAT** Document Dieter Schieba



**SELENA AUTOMAT** Document Dieter Schieba



## **SELENA-E AUTOMAT c.1966 - 1968** **L280** **Prototype (# 6807)**

Shutter speed priority automatic 35mm.  
Injection molded body. Combined Rangefinder/Viewfinder with 70mm base, collimated with parallax correction. Central shutter located behind the optical group.  
Speeds: B, 1/30 - 1/500s. Synch.  
Shutter speed selection by knurled disk under the accessory shoe, above the advance/cocking lever.  
Industar-73 2.8/40mm lens, located off center in the focusing lensmount (with LOMO logo).  
Selenium meter diffuser panel surrounding the lens.

In "Automatic" mode, light pressure on the left-hand shutter release button (located under the finder) causes a diaphragm scale 2.8-5.6-8-11-22 to light up in the finder.

Diaphragm selected is indicated by a pointer.

If light is insufficient, the scale does not appear and the shutter cannot be released.

Manual mode allows all speeds + B. (B cannot be selected in Auto mode)

Focus from  $\infty$  to 1m by rotating the ring through only 80°.

Enclosed frame counter for 36 shots

Film speed memo on back, near advance lever.

Strap lugs.

Dimensions: 145x85x80mm.

## **SELENA AUTOMAT c.1969** **L285**

**Short pre-series (fewer than 30 units produced)**

Variation of the SELENA-E. Same 35mm body.

Diaphragm scale 2-4-8-16 visible in the finder.

Speeds B, 1 - 1/500s. Synch.

HELIOS-79 2/45mm lens.

Diaphragms: 2 - 16 + A (automatic can be overridden).

Self Timer

*A clever automatic mode, conservative characteristics, simple, smooth operation are the particularities of the SELENA.*

*But selenium meters are outmoded, and the newer CdS technology is being used in many cameras, imposing new esthetic standards. Already in 1966 LOMO has begun producing the SOKOL*

## **SELENA "POLICE"** **L288**

35mm 24x24 with built-in electric motor.

Speeds: T, 1 - 1/500s. Date imprint in film frame

Three-prong socket for external power supply.

42mm  $\varnothing$  screw mount

Dimensions: 160x125x55mm.

Reputedly a camera for traffic surveillance; used by city police.

The SOKOL is rather poorly known, despite its having been available under several guises in Soviet and German discounters' catalogues for a long time.

## **SOKOL AUTOMAT "FALCON"**

**L290**

**c.1966 - 1969**

Automatic 35mm with CdS meter

Combined Viewfinder/rangefinder with 72mm base, collimated, with parallax correction. Shutter speed priority automatic; all speeds + B available in manual mode. Settings visible in finder with light pressure on release button; underexposure warning light.

Central shutter (made under Copal license), B, 1/30 - 1/500s, synch.

Combined range/viewfinder, 72mm base, collimated with parallax correction.

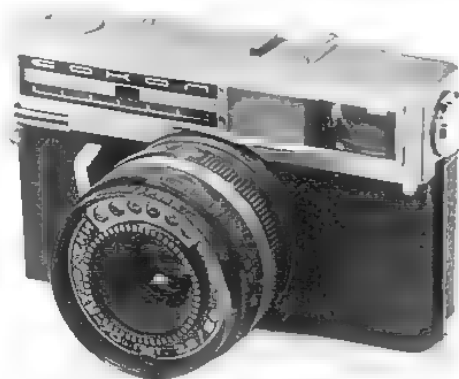
meter settings from 6 - 320 ASA. 6 meter elements surrounding lens

Industar-70 2.8/50mm lens

winding lever. Folding rewind crank on side of body

**Variants:**

L291 - SOKOL Automat in Roman letters.



*Document Polytechnic Museum - Moscow*

## **SOKOL AUTOMAT** **c.1969 - 1978**

**L300**

Derivative of the preceding model, with only 3 meter elements above the lens.

**Variants:**

the name is presented in several styles in the logo.

L305 - REVUE AUTO RS (Foto Quelle-Germany c1969)



*Document Museum voor Fotografie Antwerpen - Belgium*

## **LOMO 130 A**

**1974 - 1975**

**L310**

"Economy" model of the SOKOL Automat reserved for the domestic market.

Single meter element on the lens surround.

Lens signed LOMO. Hot shoe.

No strap lugs

**Variants:**

L310 - black upper body.

L311 - chrome upper body



*Document Museum voor Fotografie Antwerpen - Belgium*

## **SOKOL 2**

**L320**

## **SOKOL 2 AUTOMAT** **c.1979 - c1985**

**L325**

Modernized versions of the SOKOL Automat.

Identical characteristics, with hot shoe.

**Variants:**

L320-321-322-323- 324 - different graphic presentation of the logo.

## **SOKOL "Microscope"**

**L328**

Sokol body without lens, adapted for direct use on a microscope (LOMO).



*Document Museum voor Fotografie Antwerpen - Belgium*

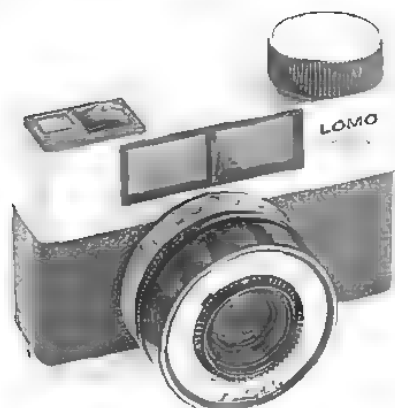


# LOMO 135

# ЛОМО 135



L333 - LOMO 135 VS with Moscow J.O. shield



L341 - LOMO 135 M

The compact LOMO-135VS and M models supposedly offer the possibility of 8-shot bursts at 2 - 3 shots per second . . . Personally, I have never been able to get to this performance. It is still a nice little camera.

**LOMO 135 VS 1975 - 1980 ... c. 85,000 ex.**

**L333**

Conceived by: A. Lakomkine

Full frame 35mm with collimated viewer and spring motor.

Symbols representing settings chosen.

Central shutter, Speeds: B, 1/15 - 1/250s. Synch

Industar-73 2.8/40mm lens.

accessory shoe and rewind crank underneath the body.

Variants:

L330 - LOMO 135VS in Cyrillic characters.

L331 - LOMO 135VS in both Cyrillic and Roman letters.

L332 - LOMO 135BC in Roman letters.

L333 - with additional "Moscow Olympics" shield (1980 models)

L334 - with additional "1917/1977 red flag" shield (1977 models)

**LOMO 135 M c.1980 - 1985 c. 90,000 ex.**

**L341**

Identical to 135VS model, but "Automatic". The desired settings are indicated by symbols on the lens faceplate.

Variants:

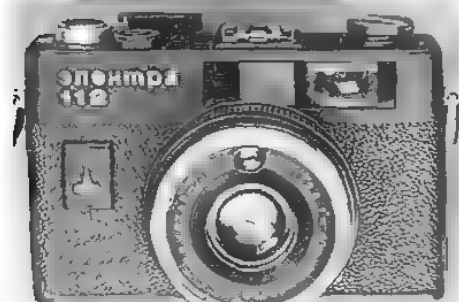
L340 - LOMO 135M in Cyrillic characters.

L341 - LOMO 135M in Roman letters.

L342 - "LENINGRAD-2" graphics

# ELEKTRA

# ЭЛЕКТРА



**ELEKTRA 112 1980 - 1986 c. 22,000 ex.**

**L360**

Full frame 35 mm aperture-priority automatic.

coupled range/viewfinder, collimated with parallax correction

Electromagnetic shutter coupled to CdS meter circuit.

self timer, film reminder plate

Speeds 8 sec. - 1/500, determined by diaphragm set

LED's indicating over/correct/under exposure.

Combined advance/cocking lever. rewind crank

hot shoe, with automatic setting to 1/30 synch speed.

INDUSTAR-73 2.8/40mm lens. Focus 0.8m ∞

Shield on lens faceplate with LOMO logo, Leningrad coat of arms (three-masted ship) or a hemisphere.

Variants:

L361 - Elektra 112, black finish.

L362 - Olympic Games Version

Various versions of the shield, with different LOMO logos

# LOMO COMPACT

# ЛОМО ЛК

## LOMO LC -A ЛК-А 1983 - 1993 c.1,000,000 units L370

Full frame 35mm automatic compact, inspired by the Japanese Cosina CX-2, although it was derived from a 1982 prototype of different design.

Galilean finder with projected framelines, focus indicators and warning light for speeds below 1/30s. (in Auto, 25 - 400 ASA)

Central shutter 2 sec - 1/500 s. in auto; 1/60 in Manual with diaphragm setting.

Hot shoe. Minitar-1 2.8/32mm lens, with metallic "eyelid" protection door.

Planned to be motorized.

Dimensions: 105x67x42mm - 250g.

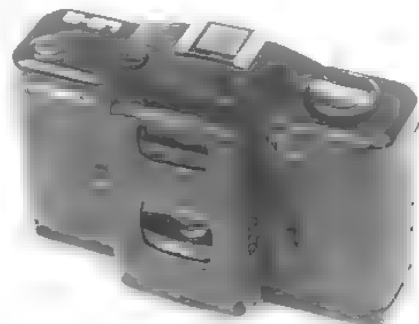
**Variants:**

L371 - silk screened in Cyrillic characters (LOMO LK-A).

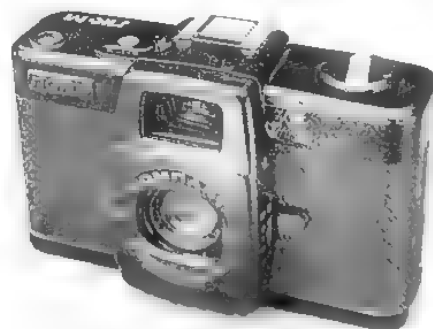
L372 - silk screen ZENIT LC-A or LOMO ZENITH. (c. 1991)

L373 - seen in London with silk screen CANON LC-A !!! (94)

L374 - Blue body . L374b - red body.



Document Photo MULLER Paris



## LOMO LC -M ЛК-М 1987...

**L375**

Automatic full frame 35mm compact. Redesigned version of the LC-A with a more reliable shutter.

Same characteristics. KOMPACT silk screened around the lens.

Dimensions: 107x68x44mm - 250g.

**Variant:**

L376 - silk screened in Cyrillic characters (LOMO LK-M).

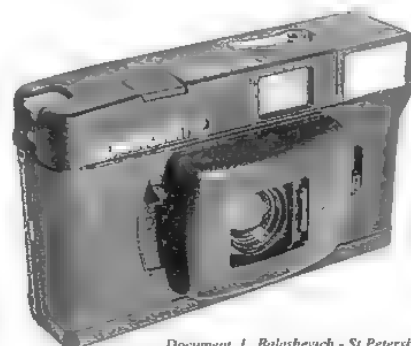
## LOMO LC -M2 ЛК-М2 1990...

**L379**

Automatic full frame 35mm compact. Redesigned version with built-in flash.

2.8/35mm lens.

Focusing ∞ - 0.8m, reversed command compared to LC-A FR cm inst of m



Document L. Balashevich - St Petersburg

## **"KRAB" underwater housing for LOMO LC c.1985**

**L378**

Although shown in the "Technointorg" catalogues since 1985, and spotted in the "Showcase of Socialism" in the "ZENIT" shop in Moscow in 1988, the KRAB seems to have been produced in "confidential" quantities until around 1993.

This is a nicely realized housing, specifically made for the LC-A and LC-M compact cameras, good for depths of up to 10m.

Removable viewer. Dimensions: 179x135x74mm - 1.5 kg.

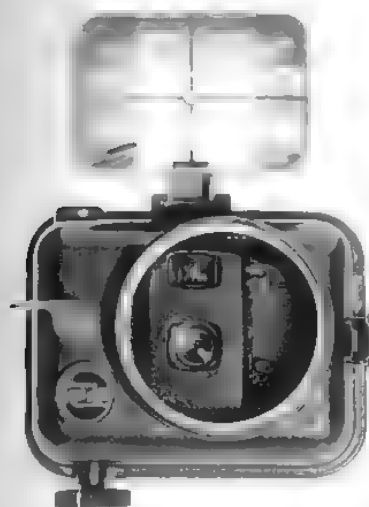
## **LOMOGRAPHY and Lomographic Society**

At the 1994 1994, a spacious booth covered with 9x12cm color snapshots, exposed in Lomographic images the passion of a Viennese group for "instinctive" pictures taken exclusively with the LOMO LC camera.

The "defects" of focus, framing, and exposure that a non-initiate might see in these shots, are actually creative actions which define the pictorial expressiveness of this group. The "Lomographers" were still around, with an even more impressive booth, at Photokina 1998. A 16x16cm album of poetic text and photos has been published, entitled "Moscow and New York"

In 1999, the Lomographic Embassy of Paris offered for sale an nicely wrapped outfit consisting of a LOMO LC, two rolls of LOMO 100 ASA films (dog and love) and a little LOMOPrimer guidebook called "Lomo on!". An accompanying text vaunts the qualities of the camera and invites the new buyer of this camera, which has become a social phenomenon, to become a member of the International club of happy fans of this particular imagery.

Lomographers can also be found on the Internet. (93)



Document J. Daniel

# ALMAZ 101-102-103-104

Although often presented as a Russian copy of the Nikon F3 (which is true for the finder unit), the ALMAZ is really the first Russian camera with the Pentax "K" bayonet, which is affixed to a body inspired by the Minolta X series.



ALMAZ 101 prototype . VOLNA-4 lens # 800001.  
Document Marc Kostjukovski

This said, the ALMAZ 101 has several features, such as the grips on both sides of the body, which reveal an avant-garde design and the desire to create a camera aimed at qualified photographers. Without success.... (see p. 69)

## **ALMAZ-101 "DIAMOND" c.1978 - 1979 L380**

Conceived by A. Advonine

Full frame aperture priority automatic 35mm reflex which never got beyond the stage of a prototype.  
Light metering off the film.  
interchangeable finders and focusing screens.  
Speeds: 10 sec - 1/1000s.  
Removable back replaceable with 200 shot back  
Planned data back and motor drive  
VOLNA-4 1.4/50 mm lens



ALMAZ 102 prototype Document Milos P. Mladek

## **ALMAZ-102 prototype c.1979 - 1980 L383**

Presented as a LOMO at Photokina de 1980

Only a few units made.

Full frame semi-automatic 35mm reflex.

Identical to L385 but with different body covering, without a serial number, with a mysterious extra little button on the finder housing and a different way of showing the diaphragm setting in the finder.

## **ALMAZ-102 "production" c.1979 - 1980 L385**

Maybe only 60 units made.

Full frame semi-automatic 35mm reflex.

Interchangeable focusing screens per Nikon F practice. However, in the Almaz system, the "Photomic" equivalent prism is better than the Nikon ones (Nikon users will understand me here.) Eight rudimentary contacts pass current to the meter cells, the batteries being lodged in the base of the body. The chosen speed and diaphragm settings are visible in the finder (as on the F2).

Vertical-running metal foil focal plane shutter B, 1 - 1/1000s.

X and FP synch at 1/60s. self timer.

planned motor drive attachment.

DoF preview as on the Minolta.

VOLNA-4 1.4/50mm lens (0 800015) or 1 8/50mm.

The lens serial number may be the same as the body number.



ALMAZ 102 "production" Document Michel Masson

# АЛМАЗ 101.102.103.104

## АЛМАЗ-103

c.1982 - 1987

L390

Presented at Photokina 1984.

Fewer than 2000 units per year.

Full frame manual, mechanical 35mm reflex.

Specifications identical to АЛМАЗ-102, but without meter. Less "prestigious" lens: VOLNA 1.8/50mm.

As a rule, the 102's don't work very well, and the 103's not for very long.... If by some miracle it works well today, watch out for tomorrow and the next day.

Accessories:

- Oblique finder.
- Waist-level finder



АЛМАЗ 103 #8301813.

## АЛМАЗ-104

c.1990

L392

Announced but never series produced, maybe because of the demise of the USSR.

Full frame semi-automatic 35mm reflex (again).

Practically identical to the Almaz-102, but with simpler metering.

Five LED's - red/yellow/green/yellow/red - instead of the LCD display of the 102. The prisms of the two models are different and cannot be interchanged. X-synch only. Standard lens: VOLNA-4 1.4/50mm



АЛМАЗ 104 . VOLNA-4 lens

Document Milos P. Mladek

## K-bayonet LOMO lenses designed for the АЛМАЗ.

L386 - VOLNA-4: 1.4/50mm (52mm: accurate focal)

L394 - VOLNA: 1.8/50mm (53mm: accurate focal)

L395 - MIR-47, MIR-47K: 2.5/20mm

L396 - VOLNA-10K: 1.8/35mm

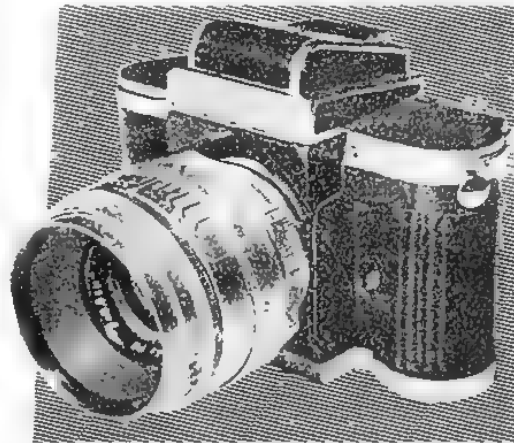
L397 - VOLNA-9K MAKRO: 2.8/50mm

## AN "UNKNOWN" REFLEX, presented by engineer-constructor V. KOUZMIN, c.1960

Presented jointly in the USSR in Sovetskoe Foto and in France in "Science et Vie" (Science and Life), August 1961. With the Kristall, the Narcissus (KMZ), the Vynpel, the Compacta, the Neva (GOMZ), as being one of the cameras resulting from "New Soviet Techniques," this camera was described erroneously in the first edition as a FED. Deeper inspection now suggests that it comes from Leningrad. We note a body shape which rather resembles that of the GOI-LENINGRAD (see p.57). Was this one also equipped with the retracting pressure plate and with the guillotine shutter? We are frankly mystified by the rounded body shape. All we can hope is that it will make another appearance sometime. To be continued...

In the July, 1960 issue of S.F. there is a 35mm reflex 24x32 presented by V. Kouzmin which is neither located nor named. It is equipped with an original (!) metal shutter designed for very low temperatures with a range of speeds from 1/2 - 1/500s, and X synched at 1/125s. Instant return mirror (in 1960!), interchangeable finders, split image rangefinder.

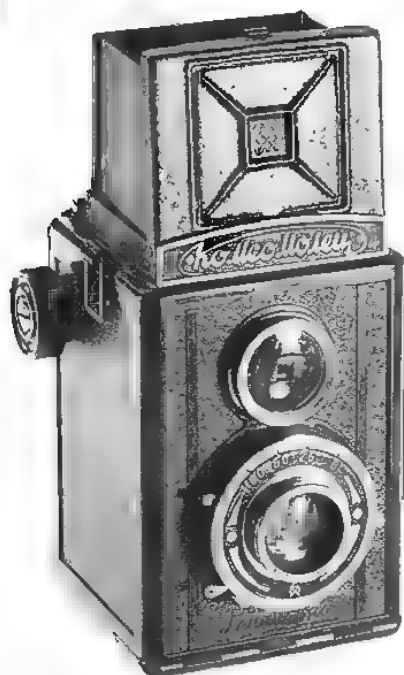
On the illustration the camera is illustrated with the Helios-44 lens from KMZ (K1740 p.168). A second illustration (see p.75) shows it with an Industar-22 from the 1952-1954 era.



A rather mysterious Reflex.

Document Sovetskoe foto

In 1945, peace having returned, GOMZ goes back to production of civilian cameras. Using a familiar raw material, bakelite, and basing its camera on a well-known German prewar camera, the Voigtländer Brilliant, the Leningrad factory produces the first and only 6x6cm Soviet twin lens reflex. Whether called Komsomolets, then Lubitel, these cameras let thousands of young amateurs around the globe make, at little cost, their first steps into the world of Photography.



## **KOMSOMOLETS "Young Communist" 1946 - 1950**

**L410**

"Conceived by" I.Shapiro... (34)

About 25,000 units produced.

Exact copy of the 1937 Voigtländer Brilliant V6.

6x6 Twin Lens Reflex. 12 shots on 120 rollfilm.

Viewer on "brilliant" lens.

Front element focusing on the taking lens.

Central shutter "ZT" B, 1/25, 1/50, 1/100s.

T-21 6.3/80mm taking lens; 4.5/75mm viewing lens

As on the Brilliant, the Komsomolets has a little compartment in the body for storing filters or supplementary lenses

**Variants:**

L411 - with or without "Model A" in raised letters on the finder lid. (35)

L412 - without filter compartment.

**Copies:**

- "Czech copy": the Druoflex I, c. 1950, Chrontax shutter

"Czech copy": the Fokaflex, c1950, Fokar 2 shutter.



## **LUBITEL "Amateur" 1949 - 1956**

**L420**

More than a million units produced.

With a name less (politically) involved, this successor to the Komsomolets gets an important modification, which was already featured on the 1938 Voigtländer Brilliant 5S - focusing by gearing together the taking and viewing lenses.

Central shutter "ZT-5": 1/10 - 1/200s. ("Cyrillic" version)

Viewing lens 2.8/60mm. (different focal lengths)

"T22" 4.5/75mm taking lens, coated

95x90x125mm - 550g

**Variants:**

L421 - Engravings in Roman letters: shutter 1/15 - 1/250s. (see Lubitel 2)

L422 - with or without GOMZ logo on the folding viewer hood.

L423 - with "SPUTNIK" logo.

L424 - engraved "Amatör" c. 1950. (36)

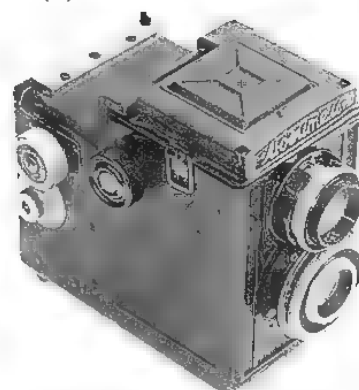
**Copy:**

- "Chinese copy" : the CHANGLE c. 1961. (28)

## **LUBITEL with interchangeable 35mm back.**

**L438**

Beautifully made, this bakelite and steel 35mm magazine back lets you take 24x36mm views with the Lubitel. Whether factory or home-made, this bizarre accessory was offered at the Bièvres photo fair in 1998 (20)



**35mm back in bakelite** Document M. Czyzewski

## **LUBITEL 2      1955 - 1980**

Conceived by G. Barkovski.

More than two million units produced.

Identical to preceding model, but with a few improvements:  
central shutter "ZT-5": 1/10 - 1/200s. later "ZT-8" : 1/15 - 1/250s.  
self timer and x-synch

Variants:

L431 - LUBITEL body and shutter with LUBITEL 2 nameplate

- different Cyrillic engravings

L432 - several engraving styles in Roman letters

L433 - aluminum or black hardware and focusing ring

L434 - LOMO signature.

L435 - engraved "KALIMAR TLR 100". (37)

## **L431**



## **LUBITEL 166      1976 - 1986**

## **L450**

Around 69,000 units.

Conceived by G. Barkovski.

Redesigned plastic version of the LUBITEL 2 with the same specifications. The viewer can be used as a sports finder. Flash synch. 102x97x126mm - 700g.

Variants:

L451 - L461: LUBITEL in Roman letters.

L452 - L462: Moscow Olympic Games (1980).

L463: Bear with Olympic rings symbol

L464 - Bear with Olympics Rings.

L465 - LUBITEL 166 with shutter automatic cocking coupled (148)

## **LUBITEL 166 B    c.1980**

## **L460**

Around 900,000 units.

Simplified version of the Lubitel 166.

scales and adjustments made by symbols

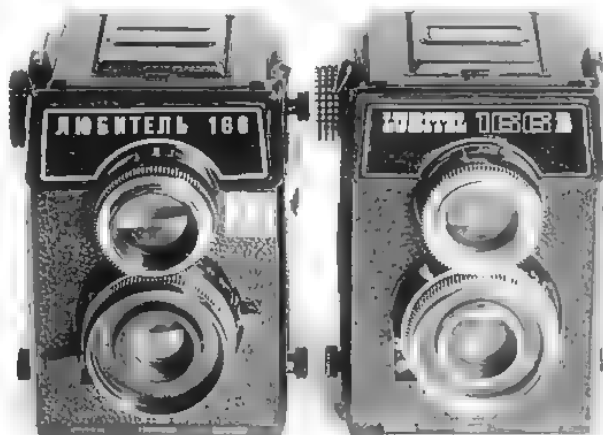
## **LUBITEL 166 Universal    c.1983 - 1993..    L470**

Around 400,000 units.

Identical to model 166. bi-format 6x6cm and 4.5x6cm with a supplied reducing mask.

*"Abusively" recommended to professional photographers in some Soviet catalogues... but the Lubitel 166 models, just like their older brothers the Lubitel and Lubitel-2, are in Europe, as in the USSR, the camera of choice for budding young photographers.*

## **L450 and L460**



**LUBITEL 166 and LUBITEL 166B**

## **ELECTRON**

## **ЭЛЕКТРОН**

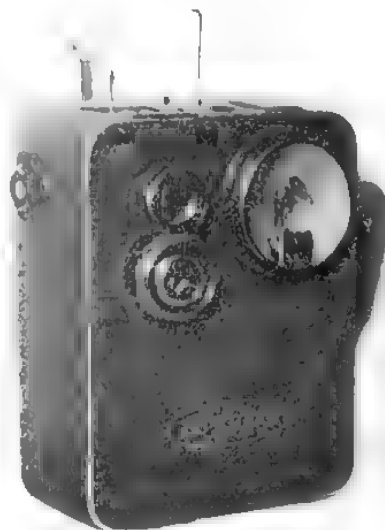
### **c.1960 - 1970**

### **L439**

Probably not made by GOMZ, this extension of the LUBITEL 2 with built-in electronic flash with rechargeable battery pack, was destined to professional use.

The LUBITEL must have been the lightest part of the rig... This is the first Russian camera with built-in flash. (see p167, ELIKON)

delivered with a battery charger. It is an unadorned but imposing photographic device. Some French photographers will be reminded of the Sem "Semflash." (91)







*Stereo camera based on the Lubitel which has been astonishingly successful during the last decade of the 20th century. Indeed, lots of SPUTNIKS were remaindered during the seventies by some big retailers, to the total disinterest of collectors at the time*

## **SPUTNIK 1955 - c1975 "TRAVELING COMPAGION"**

**L480**

Probably conceived by G. Barkovski. Around 84,000 units.

Camera making 6 stereo pairs 6x13cm on 120 rollfilm.

Bakelite body. Reflex viewing on a clear viewing screen with a frosted central spot, through a central 2.8/60mm viewing lens geared to a pair of T22 - 4.5/75mm taking lenses. The whole assembly is focused from 1.4m - ∞ by geared crowns around the lenses.

Coupled central ZT.85 shutters, primary on the right, secondary on the left  
Speeds 1/10 - 1/100s with X-sync.

Film advance by knob.

Delivered with stereo viewer and contact sheet printer.

*Variants:*

L481 - with speeds 1/8 - 1/125s., with T22 lens

- various spellings in Roman letters.

L482 - nameplate "DUVAL" (Duval Studios Ltd - *Amateur Ph.* 1966 )



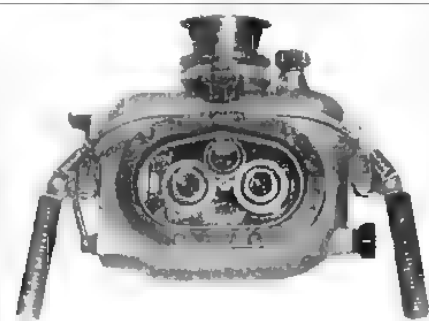
**SPUTNIK "2"** Document P. Colin

## **SPUTNIK 2**

**L490**

Technical evolution of the Sputnik. Body unchanged but control knobs are enlarged and the viewing hood is from the NEVA.

T35 - 4/75mm lenses. Speeds 1/8 - 1/125s. +B.



## **SPUTNIK UNDERWATER HOUSING c.1963**

**L500**

This special underwater reflex housing for the SPUTNIK incorporates a number of impressive technical features. Controls focusing, cocking, film advance, and diaphragm incorporated Flash synch.

Adaptable external high intensity lighting rack

*Many stereo photographers interested in shots of underwater flora and fauna are left dreaming about the possibilities of this housing.*

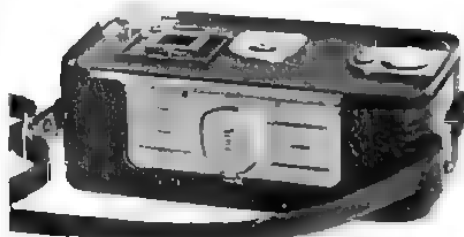
## **STEREO-CAMERA "ETUDE" c.1955**

This stereo camera seems to have no characteristics in common with any other model.

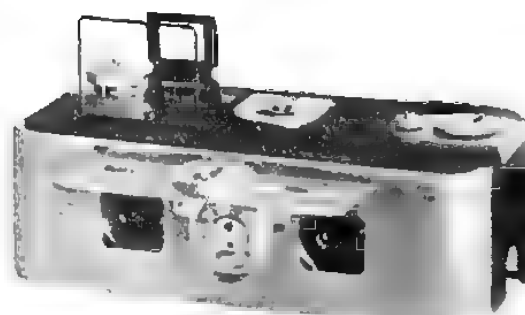
20 24x30mm stereo pairs on standard perforated 35mm film.

body in stamped sheet metal. Folding frame finder.

Guillotine shutter.



Document Sovetskoe Foto . October 1959



Speeds: B, 1/25 - 1/200s. Twin Industar-10 3.5/50mm lenses, identical to those of the FED-1 Coupled diaphragms and focusing mechanisms  
Decorative front plate protecting the lenses and also serving as a sunshade.  
Dimensions: 160x80x55mm. Weight: 1400g.

*Author's note: The original can be seen in the 2002 catalogue of Leica Shop Wien*

**NEVA c.1956 - 1958 "NEVA: Leningrad's river" (01)**

A few hundred units produced.

**L440**

GOMZ's attempt to present a more original and better performing camera than the Lubitel.

6x6cm TLR taking 12 views on 120 rollfilm

Metal body. Trigger film advance, using the right thumb.

Reflex viewing on groundglass.

Focusing done by moving the lensboard with a knurled knob located on the left side of the camera

ZT-11 shutter (very close to the ZT-12 used on the Junost.)

Speeds 1/8 - 1/250s. uncoupled cocking mechanism

Coupling of speeds and diaphragm by a lever on the notched EV scale (see Junost and Vympel.)

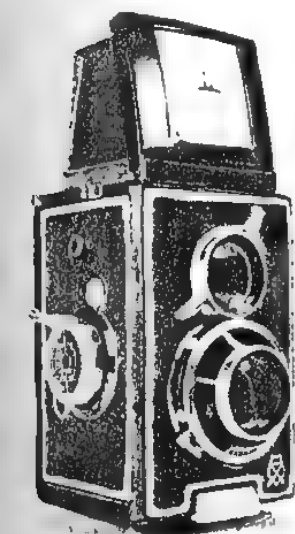
Industar-6 3.5/75mm lens (see Vympel).

95x91x128mm - 830g.

Although described in glowing terms by both Soviet (1961) and Western (38) press, the NEVA was not produced in very large numbers.



**NEVA "production"** Document O. Peridy



**NEVA "L445"**

Document Sov. Foto, Feb. 1958.

## Variants:

L442 - Prototype with Compur-Rapid shutter giving 1/500s. and equipped with a German 3.5/75mm lens. (probably a test model.)

L444 - Identical version to the L440 but with L-6 4/7.5cm lens

L445 - A second model was also presented by the Soviet press. It is focused by turning two tabs on the viewing lens. (see photo)



**NEVA prototype with Compur shutter**

Document Marc Kostjukovski

**Prototype ESTAFETA c.1955 - 1956**

**L505**

Prototype or ingenious homemade special, this camera's nameplate is engraved "Estafeta."

Mass market camera 4.5x6cm with collapsible lens tube.; simple Galilean finder.

All controls are grouped on the lens

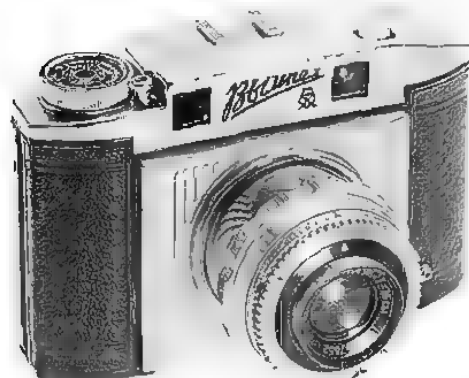
shutter B, 1/8s. - 1/250s. with self timer and synch.

T-22 4.5/75mm lens (Sputnik)





Prototype of VYMPPEL - Document M. Kostykovsk.



VYMPPEL - Document D. Scheiba



RF coupling  
Document D. Scheiba



ESTAFETA - Document D. Scheiba

According to the Western photographic press during the sixties, the VYMPPEL and the ESTAFETA-GOMZ remained at the stage of pre-series production. They were, in fact, placed on the market, in all probability they were too expensive to produce in Leningrad, and only a few hundred units were made.

The ESTAFETA, the "simpler" version of the two, was delivered starting in 1959 for only a few months, by the Belorussian factory "MMZ."

## VYMPPEL-ESTAFETA c.1957

L510

Prototype of the "VYMPPEL".

Mass market medium format camera with collapsible lens, 6x6 and 4.5x6cm.

combined RF/VF.

shutter B; 1s. - 1/250s. with self timer and synch.

T-33 3.5/75mm lens. focusing and DoF scale located under the lens.

Body mounted shutter release. (39)

## VYMPPEL 1958 - 1959 "BANNER" or "INSIGNIA"

L520

A few hundred units produced.

Redesigned Version of the prototypes.

6x6 SLR on 120 rollfilm. Combined RF/VF

Central ZT-14 shutter: B, 1/8 - 1/250 with external cocking lever mounted on shutter assembly. Lens/shutter are mounted on a sliding collapsible tube containing the RF coupling mechanism and body shutter release coupling.

Focusing by rangefinder or scale, from 1m to ∞, by turning textured ring around lens.

EV coupling (EV 7 - 17) of shutter speeds and diaphragms via lever.

Self timer and synch.

Industar-6 4/7.5cm uncoated lens (see Neva)

The serial number (#57652) of the lens on the camera offered for inspection makes us think it was made in 1957, mounted on a body made in 1958 (#58585).

swinging film-spool carriers to facilitate loading.

Large knurled wind knob with film-speed memo; image spacing by ruby window in the camera back.

Dimensions: 142x93x95mm - 750g.

## ESTAFETA-GOMZ 1957 - 1958 "MESSENGER"

L530

A few hundred units produced.

Economy version of the VYMPPEL, based on same body castings.

Identical specifications to VympeL, but without rangefinder,

ZT-13 shutter: B, 1/8s. - 1/250s. Shutter release on the lens assembly; front element scale focusing

Coated T-35 4/7.5cm triplet lens, with GOMZ label.

Dimensions: 142x93x85mm - 630g.

Series production was done by "M.M.Z. VAVILOV" beginning in 1958-59, under the same name. (p.240)

By Dieter SCHEIBA

In the August, 1962 issue of the West German magazine "FOTO-MAGAZIN" appeared a short bulletin announcing the Janus: "In the Soviet Union, a camera named the JANUS will soon be produced. It is a clever combination of a 35mm camera, with many of the characteristics of the Smena, and of an amateur 8mm movie camera equipped with a fixed 2.8/10mm lens and a single speed of 16 fps. The two cameras are back to front in the same chassis, and it is possible to switch functions instantly, by turning the camera around."

In 1994 this admirably made prototype appeared before our very, and very astonished, eyes at the Bièvres Photo fair. (20)



JANUS, 35mm side  
Document D. Scheiba

L210

JANUS FILM FOTO KAMERA (30) c1960

The single chassis body for these two cameras is a metal injection molding finished in black lacquer.

Each of the two "cameras" is perfectly developed, and easy to use.

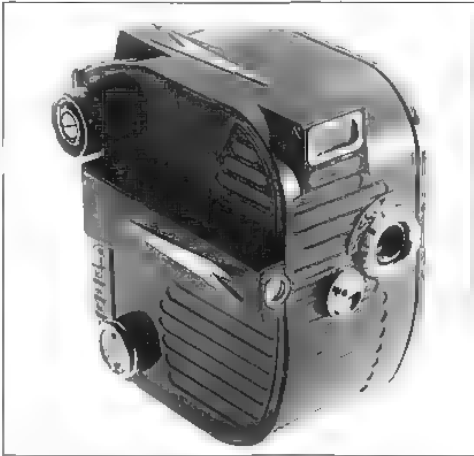
The still camera is equipped with a T-22 4.5/4cm lens (see Smena p.50) in a ZT-5 shutter with: B; 1/10s - 1/200s.

The camera is a variant of the Sport (see p. 253)

Battery powered electric motor.

a 2.8/10mm ciné lens.

No serial number.



JANUS, 8mm side  
Document D. Scheiba



NEW CAMERAS

In the first edition of this book, after reading a Sovetskoye Foto article mentioning the economic planning of such a device at KMZ, we decided to include the REPORTER in the KMZ chapter.

One must recall that Soviet journalists rarely mentioned the origins of the new equipment they described, maybe due to indifference - they were, after all, products of the collective Soviet industry, or maybe by discretion.

New documentary evidence, providentially including a letter from Alexander Bronstein, convinced us of the Ukrainian origin of this piece; it is indeed in Kiev that this high-end folder was designed and built. So we will find it in the Kiev chapter, p. 215.

As for the magnificent 35mm SLR show behind the "Kiev - reporter", see p. 69 for more details.

"NEW CAMERAS"  
by V. KOUZMIN, Design Engineer Doc. Sovetskoe Foto 7-1960

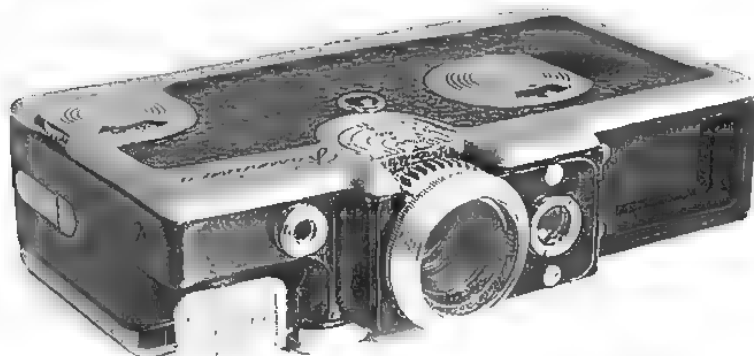
# COMPACTA

# КОМПАКТА

## COMPACTA c.1956-58 "COMPACT"

Although the COMPACTA has been seen in store windows of "Soviet Socialism" during the late sixties, it does not seem to have appeared in the western collector markets at the time this work is published.

Presented in the Western press (Science et Vie, August, 1961) the Compacta and its technical specifications appeared in a book by E. A. IOFIS (33) on amateur photo equipment in 1962. It is described as being a camera with "revolutionary" shape, although it seems in reality to have been inspired by the 1951 Goerz MINICORD, from Vienna, Austria.



Document L. Bulashevich

Compact camera giving 36 views 14x21mm format on unperforated 16mm film.

Combined optical RF/VF

Metal shutter with lever wind;

Speeds: B, 1/8s - 1/250s. x-synch

Industar-65 2.8/28mm lens, focusing 0.5m - ∞.

Dimensions: 115x70x30 mm. Weight: 482 g.

# COSMIC-117

# КОСМИК-117

By Alain Berry

The COSMIC 117, a surprising little "110 type" camera, cannot take the Kodak cassette invented around 1972, but does take the similar cassette produced by ORWO c1980 for the Pentacon K16. Prototype, 13x17mm format, aperture-priority automatic (5,6 to 16). Electronique shutter, focusing lens.

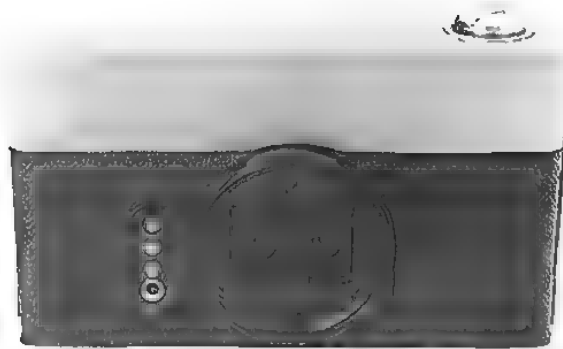
The COSMIC 117 was never mass-produced.



COSMIC 117 prototype #1 Document A. Berry

# FKM-1

# ФКМ-1



FKM-1 Document A. Berry

## FKM c.1987 (# 870328)

Full frame 35mm motorized camera; 135x83x38mm.

Underneath the body are the shutter release, a frame counter, and a disk for setting the film speed (2 - 130 GOST) on the meter

3 contacts on camera front, classic 42mm screw mount.

Inside the lensmount, a retractable waterproofing device leaves us perplexed about the use intended for the FotoKamera Motor -1.

So we'll have to wait for the FKM-2...

# MOMENT

# MOMENT

**MOMENT 1952 - 1954 "INSTANT"**

**L550**

**Around 9,000 units produced**

The appearance of the POLAROID 95 in 1948 had the immediate effect of an electric shock in the world of traditional photo imaging. The Soviets, too, were "exposed" and impressed.

At the end of 1950 they undertake the development of their own model, including the chemistry to develop the film. The camera is ready by 1952 but the instant films never catch up with them.

Another try in the mid-sixties has the same result: the camera, called the FOTON (KMZ) is quickly perfected, but the film chemistry ....

Was this the result of inability to produce a film with integrated processing, or rather the prudence of the Soviet powers that be with respect to a product which might bring to its users too great a freedom of photographic action, maybe even too much freedom in general?



This imposing but seductive folding camera will never be able to take a picture ... for lack of the appropriate film.

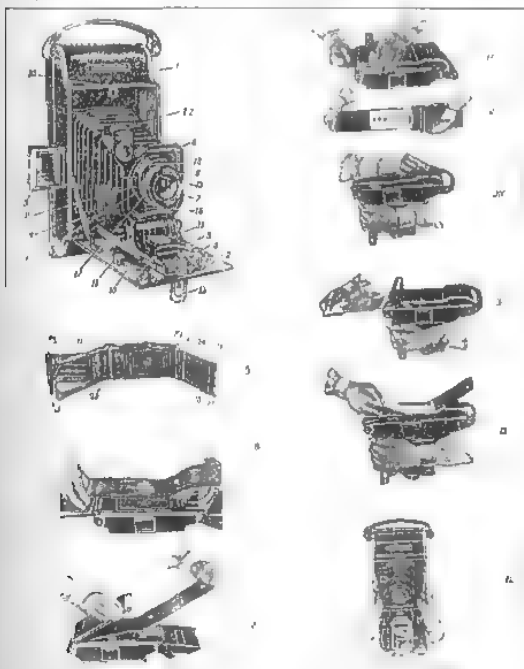
Vertical format metal folding bellows camera, covered in dark brown leatherette.

Useful image: 8x10.5cm.

Simple frame finder on body, with simple mirror finder on lensboard central shutter. Speeds: B; 1/10s. - 1/200s.

T-26 6.3/13cm lens

Opposite: Instruction book for using an instant film ... very instant.



# UCHENIK

# УЧЕНИК

**UCHENIK c.1952-54**

**L560**

**Maybe fewer than thousand units produced**

The Moment seems to have been sold in small quantities, because used cameras can be found (using what films?) But confronted by the inevitable lack of success of the Moment, the GOMZ engineers quickly recycle its lens assembly and some of its parts (in particular the beautiful focusing ramp) on an "old style" 9x12cm folding camera. The Uchenik is aimed at youngsters - students and other young fans of large format photo.

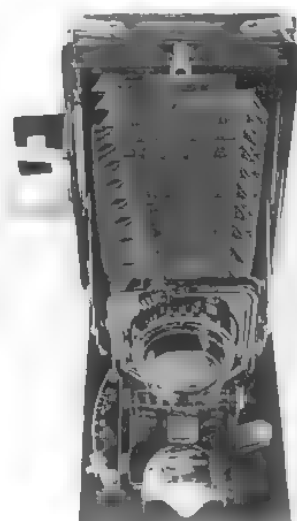
Vertical format metal folding bellows camera, covered in black leatherette.

Format: 9x12cm.

Simple frame finder on side of body

central shutter. Speeds: B; 1/10s. - 1/200s.

T-26 6.3/13cm lens



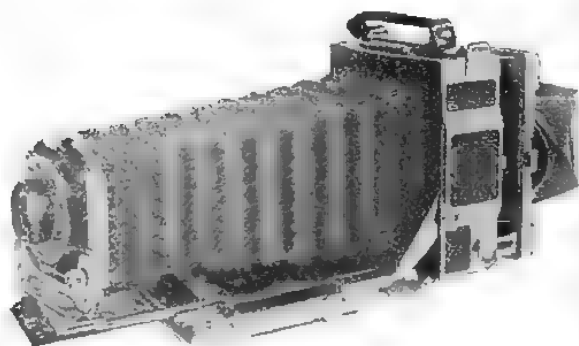
Document Marc Kostjukovski



## FOLDING 6X9-9X12cm "TECHNO"



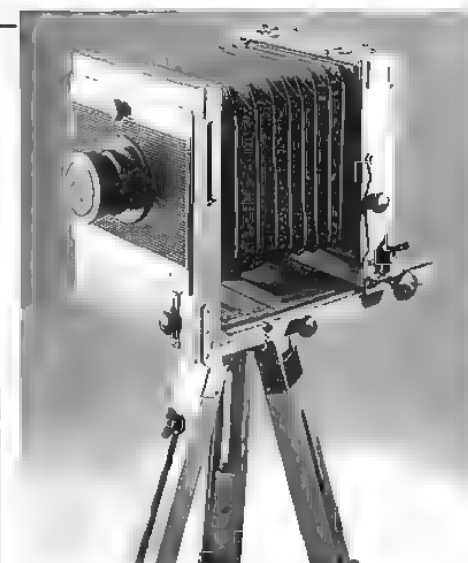
*Right now it is impossible to establish the exact origin of this technical field camera. However, a complete article in the October, 1958 issue of "Fotograf", an East German specialist magazine, confirms the camera's existence. (40)*



Professional 9x12cm folding technical camera, with uncoupled rangefinder. 6x9cm format possible with reducing back for film pack or rollfilm back. Horizontal and vertical shifts and tilts on front standard. Minor corrections allowed on rear chassis holding the ground-glass focusing panel. Double extension bellows. Delivered in a fitted carrying case with interchangeable lenses: Industar-55 4.5/140mm and ORION 6.3/80mm in FZ-4s shutter, and a "Moment" (Polaroid) back.

### Variants:

- Technical camera with rotating back and rear tilts. Folded dimensions: 160x160x85; Weight: 2.2 Kg.
- Technical camera without rotating back or rear tilts, but with drop bed for use with wide-angle lens. Folded dimensions 160x160x70; Weight: 1.6 Kg.



## SOYUZ ORGTECHNICA 1969 c 1988 Folding field cameras

These cameras, made in Kharkov, Ukraine starting in the seventies to replace those produced by GOMZ before and after the war, are generally nicely made in fruit wood with chromed or nickered metal components. Horizontal and vertical shifts are made on the lensboard (often black, textured plastic), while minor tilts can be made to the rear standard. Double focusing rack.

Generally delivered with a wooden tripod, wooden or plastic (for the more recent versions) film holders, and carrying case.

- Folding field camera 13x18cm.  
Industar-51 4.5/21cm lens made in Kazan
- Folding field camera 18x24cm.  
Industar-73 4.5/30cm lens made in Kazan



## ЗАВОД ШИРОКОФОРМАТНОЙ ФОТОАППАРАТУРЫ Photographic equipment factory

### Studio cameras FKP 30x40cm

Also made in Kharkov, Ukraine, these studio or process cameras in 30x40cm were delivered with particularly imposing wooden studio tripods.

Horizontal and vertical shifts can be made on the lensboard.

Double focusing rack.

Delivered with reducing backs for 18x24, 24x30 and 30x40cm, and wooden film holders

- Studio bellows camera FKP 30x40cm.  
Industar-11M 9/45cm lens made in Kazan

*Document Irene E. Frolova*

# FIELD CAMERA "FK"

# ФОТОКАМЕРА

## Folding field cameras FK13x18 and FK18x24cm

These field cameras, included in the production figures of GOMZ-OGPU from around 1940, were inspired by the German "Reise kameras" (traveling cameras), and were already being produced before the Revolution in several workshops in Petrograd and Moscow. (see p. 21). These workshops were integrated into state enterprises around 1930. These "archaic" field cameras were used by generations of Soviet professional photographers; their manufacture was abandoned around 1987 in favor of the RAKOURS models.

### Variants of the FK:

G200 - **FK-13x18** GOMZ 1930 - 1940 (about 2000 units produced between 1933 and '39) Industar-4 4.5/21cm lens

G210 - **FK-13x18** GOMZ-LOMO 1946 - c.1965; Ind.-51 4.5/21cm lens.

G220 - **FKD-13x18** ORGTECHNICA c. 1970 - c. 1987.

G300 - **FK-18x24** GOMZ 1930 - 1940 Industar-11 lens (c. 1928 - 1940), then Industar-13 4.5/30cm.

G310 - **FK** - GOMZ-LOMO 1946 - c. 1965; INDUSTAR73 4.5/30cm lens.

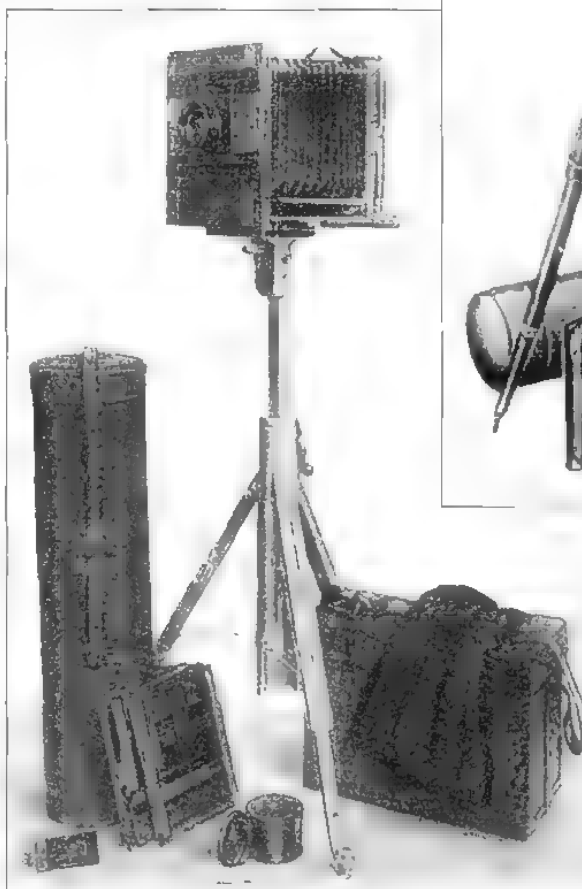
G320 - **FKR-18x24** ORGTECHNICA c. 1970 à 1987.

All these cameras were delivered with tripod, carrying case, film holders and accessories.

*Author's note:* Several other brands of Soviet wooden field cameras (Soyuzkino for exemple) have been noted by the author, but the lack of any other information about them prevents their inclusion here.



example of an FK 13x18 outfit  
Document Soviet Press



Example of an FK 18x24 outfit  
Document Soviet Press

Let's finish this chapter on the oldest lens, still and ciné camera factory in the Soviet empire (see p. 244) with a flourish. Here are a few beautiful and rare lenses "Made in Leningrad" bearing the GOI brand, which can occasionally be found in the collector markets of Europe.

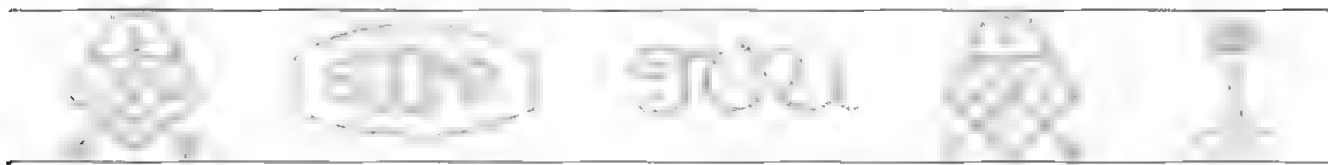
Examples:

TELEGOÏR -K 2.8/200mm, (in several versions) c. 1980; GOI -YANTAR -K 2.8/200mm, c. 1980; YANTAR-12 3.5/35~100mm, c. 1980; or the really astonishing ISKRA-3 0.65/7.2cm.

Good hunting and good luck ...



GOI - ISKRA-3 0.65/7.2cm  
Document M. P. Mladek



**ЭФТЗ**

*"Арго"*



**ФАГ**



МИНИАТЮРНЫЕ, ВОЕННЫЕ

И ДРУГИЕ ДОКУМЕНТАЛЬНЫЕ



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# EFTE - ARFO

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ЕФТЕ АРФО	82	EFTE ARFO
ЕФТЕ	83	EFTE
АРФО	84	ARFO
КОМСОМОЛЕЦ	84	KOMSOMOLETS
ПИОНЕР	85	PIONEER
ЮРА, ФЕДЕТТА	85	IURA, FEDETTA

In Moscow in 1929, in the cooperative workshop FOTO-TROUD began the construction of the EFTE 9x12cm camera equipped with a Periscope f:11/13.5cm lens. It's a "rustic" folding camera, much inspired by the German 9x12 models made by ICA (see p. 24.)

Afterwards (c. 1934) the factory organized the production of a more evolved camera, the ARFO (41) with an ARFO 4.5/13.5cm anastigmat in a GOMZ central shutter identical to the FOTOKOR but signed ARFO, also for 9x12cm.

Even later came the ARFO IV 6.5x9cm, the smaller response to the 9x12cm ARFO. A very revealing article about the "ambiance" in the Russian photo industry appeared in the beginning of 1930 in Sov. Foto; it related the "the balance sheet of the descent (to use their term) into the F.T. Workshops" located at Pokrovka and the impasse Sretensky, by the brigade of the O.D.S.K. (42) The Brigade comprised nine officials representing photo circles of the "Central Council Sections."

## Document

*In quarters which must be thought of as totally outdated and precarious to work in, 78 workers are assigned to production, of whom only a handful are qualified. The rest of the workforce is comprised of laborers trained on the job. The absence of engineers and qualified supervisors is noted and deplored.*

*The equipment is generally insufficient and primitive, and a noteworthy portion of the work-day is thus wasted on repeated adjustments of the machine tools. The only vaguely qualified supervisory personnel must "invent" everything and must restore on an empirical basis the adjustments of the lathes and the setups of all the operations, and the tools themselves are crude and imprecise.*

*The situation concerning the raw materials is unsatisfactory and could put the production program at risk.*

*By the 26th of February, 2000 aluminum bodies had been finished, and even more spare parts.*

*F.T. should receive 3 tons of aluminum in the days to come, which should suffice for 6000 bodies*

*Will there be a second delivery of aluminum for the 25,000 bodies foreseen in the Plan?*

*The enterprise has 4,500 imported Vario shutters on hand at this date. Will hard currency be allocated to buy the missing shutters needed?*

*F.T. has nevertheless developed a plan to produce its own Vario-type shutters within a year and a half, provided they receive the required imported machines, which have been approved and ordered.*

*The factory also lacks steel, calibrated brass stock, and velvet. However, they do have adequate leather for bellows, and other simple parts produced nationally.*

*A more elaborate EFTE, with an f4.5 anastigmat, is foreseen. The bodies will be in steel to reduce the need for aluminum.*

*Under these conditions, one must not expect F.T. to meet precise planned production goals, and for the time being the firm's finances*

*do not permit it to increase production anyhow*

*Assembly of cameras from semi-finished parts has begun, but only slowly due to the small workforce assigned to the project, and to the absence of rationality and distribution of work assignments.*



ARFO- Workshop- doc Sovetskoe FOTO



Assembly of bodies- ARFO- doc Sovetskoe FOTO

*A 9x12cm model with an f:11 "Periscope" lens is under preparation, plus 900 units with an imported f:6.3 anastigmat (by Kennigott, Stuttgart) and a single extension bellows and aluminum body.*

*As of February 18th, F.T. has made and delivered the first 10 EFTE cameras to the Centrosoyuz. Ten more are promised and, if the workforce can be increased, 15 to 20 cameras can be produced daily, with a goal of 1000 units per month.*

*Examples of prices:*

*Variant #1 (aluminum body, imported f:6.3 anastigmat) 80 R*

*Variant #2 (aluminum body, Soviet-made periscope lens) 45 R*

*Variant #3 (steel body, Soviet-made periscope lens) 25 R etc.*

*A lengthy conclusion follows, repeatedly insisting on the problems with guaranteeing quality in view of the insufficient labor force and difficulties*

*of supply of raw materials putting the production plan at risk; And reminding the High Council of the Peoples' Economy of the lack of engineers, the Ministry of Commerce of the non-supply of imported equipment, the Moscow City Council of problems with Foto Troud's quarters...*

*and calling on the responsible parties at the ODSK and SOFO magazine to keep a vigilant eye on production, to point out mistakes in order to overcome the maladies of youth and to organize a campaign of information about the difficulties of F.T.*

*And this was done....*

In 1935 the Workshop also produced non-condenser enlargers and was preparing a 6x6cm reflex camera with focal plane shutter (43).

Beginning in 1937 the ARTEL FOTO takes the name "20 years of October".

However, ARFO is subjected to competition by VOOMP, and in very critical terms about the poor quality of Moscow production, the Soviet press writes,

*"Inexpensive production is the best path for ARFO, which MUST complement, not duplicate, national production."*

Production of 9x12cm and 6.5x9 double extension bellows cameras with f:4.5 anastigmats slowly dies out in favor of the 6.5x9cm Komsomolets.

Camera production stops altogether in 1940.

One of ARFO's young collaborators, E.V. SOLOVIEV, works in the new Moscow factory, KMZ, after the war.

He is actively involved in the conception of the FT1, FT3 and HORIZON (see p.123, 178).

# EFTE

# ЭФТЕ

## EFTE 1 1929 - 1931

"PHOTO WORK" "Foto Trud"

E10

Fewer than 50,000 units produced.

Folding plate camera 9x12cm format.

Folding frame finder or viewing and focusing on ground glass. simple slide without rack and pinion.

Aluminum or steel body, no lens movements.

Periscope type "Moscow" lens f:11/13.5 or 15cm.

Vario shutter with decorative plate revealing the Soviet star or the EFTE logo.

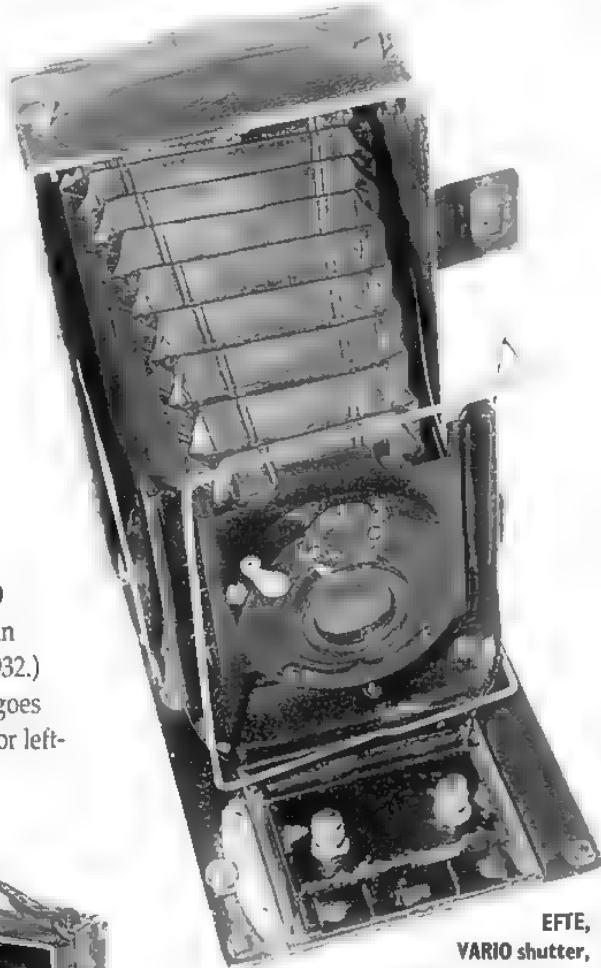
Speeds: B, T, 1/25 - 100s.

Variants:

E10 - 6.3/ 135mm lens Kenngott, Aluminum body.

E11 - Periskop lens 11/135mm, Aluminum body.

E12 - Soviet Lens, steel body.



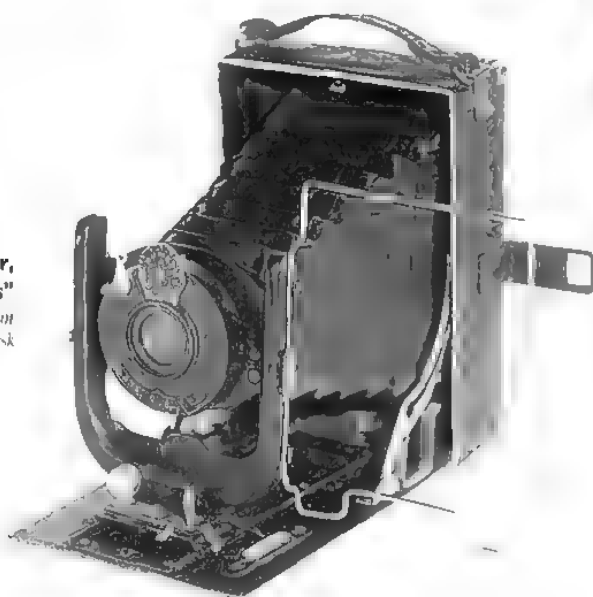
EFTE,  
VARIO shutter,  
"periscope" type lens.  
Document M. Kostjukovski

## EFTE 2 1931 - 1933

E20

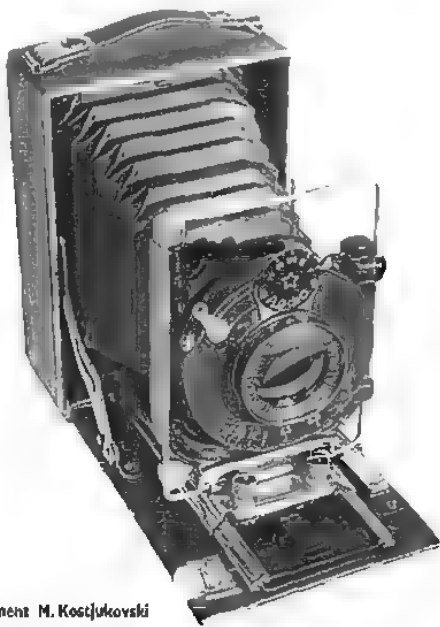
This variant of the EFTE 1 is announced as being the first 100% Russian camera (even though the GOMZ shutter is not really available until 1932.)

The model shown here shows a change in the scale focusing index: it goes from being made for right-handed operation (opposite) to one made for left-handed operation (below.)

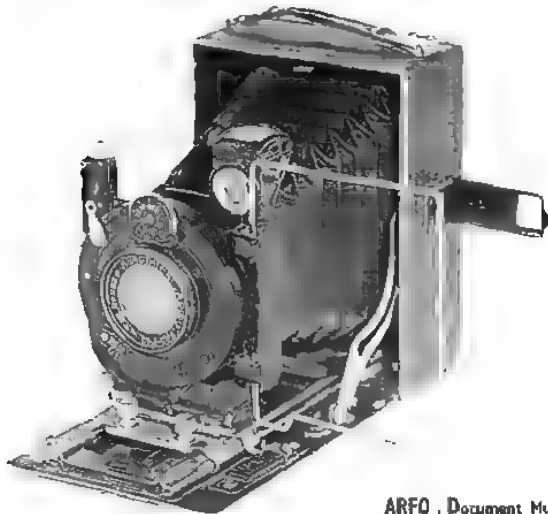


EFTE, EFTE shutter,  
"periscope" type lens"  
Document KMZ Museum in  
Krasnogorsk





ARFO . Document M. Kostjukovski



ARFO . Document Musée RMZ

**ARFO 1933 - 1941 "ATELIER PHOTO" E30**

About 80, 000 units produced.

Folding plate camera, 9x12cm format

bright reflex, and folding frame finders

Aluminum body casting. rack and pinion focusing on ground glass

vertical and horizontal shifts on the front standard

4.5/13.5cm anastigmat lens

"ARFO" shutter, identical to that of the EFTE.

*Variantes:*

**ARFO 2 c.1938 E40**

Identical to the preceding model, but with fixed lens standard, simplified focusing and no reflex finder.

Anastigmat lens 4.5/13.5cm, or Periskop Arfo 15cm.

**ARFO 2a c.1938 E50**

Variation of the ARFO 2 with 6.3/13.5cm lens

**ARFO 3 c.1938 E60**

Folding plate camera, 9x12cm format

ARFO 4.5/13.5cm anastigmat lens

**ARFO 4 c.1936-1940 E70**

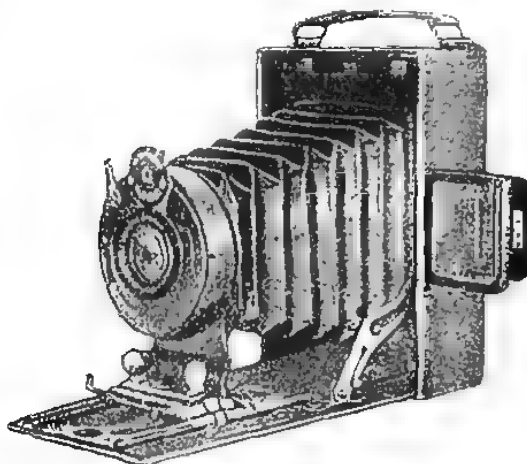
Folding plate camera, 6.5x9cm

same specifications as that of the ARFO

Anastigmat 4.5/10.5cm or 12cm lenses

## KOMSOMOLETS

## KOMCOMOЛEЦ

**KOMSOMOLETS 1936 - 1940 E80**

"YOUNG COMMUNIST"

Conceived by Mironov

Simpler variant of the ARFO 4 aimed at the young photographer, as the name implies.

Folding plate camera, 6.5x9cm

Frame finder

6.8 Triplet or 6.3 Anastigmat lens

ARFO 1/25 - 1/50 - 1/100s. shutter

Like the EFTE and the ARFO, the KOMSOMOLETS has a reputation for very shoddy quality; it is very, very uncommon.

## **PIONEER** c.1936-1937 "PIONEER"

**E90**

First released as the ARFO, this camera was relabeled in 1937 as "20 years of October" in honor of the anniversary of the Revolution.

box camera for 6.5x9cm plates

peep sight finder

simple, one-speed shutter

f:11 periscope shutter with Waterhouse stops

### *Variants:*

E91 - Made during the same period by the FOKHT works in Kiev (see p.24).

## **PIONEER II** c.1937-1938

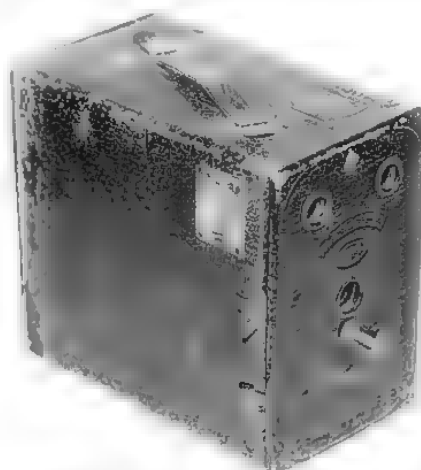
**E95**

Evolution of the Pioneer.

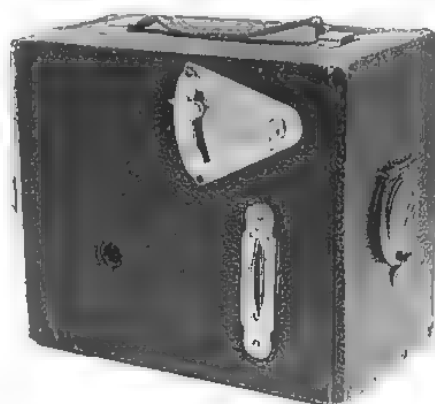
## **ARFO 6.5x9**

**E96**

The camera illustrated here has the ARFO logo on its lens cap.



PIONEER ARFO. Document Moscow Polytechnic Museum



ARFO. 6.5x9. PIONEER ou PIONEER II Doc. G+M. Gershman

# IURA - FEDETTA

# ЮРА . ФЕДЭТТА

## **IURA** "LITTLE GEORGE"

**E100**

produced by the "Co-op Igrushka" - the Toy Cooperative - in Moscow from 1935 to 1937.

This cooperative also produced a mass-market single-use box camera in 4.5x6cm format c. 1934

## **FEDETTA**

**E110**

Produced afterward by the Moscow workshop "Gorbannov plant" c.1937.

Full frame 35mm camera on perforated ciné film.

Darkroom loading. film advance with a tell-tale - one

rotation of the frame corresponds to one view.

Body in wood (Iura) or in crimped steel (Fedetta.)

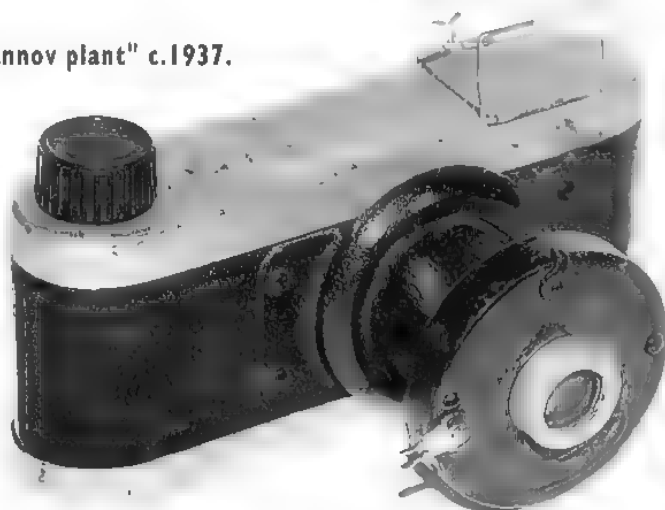
Simple frame finder. Finish in silver and black

Rotating sector shutter, speeds B, I (instant)

Collapsible 12.5cm "monocle" lens

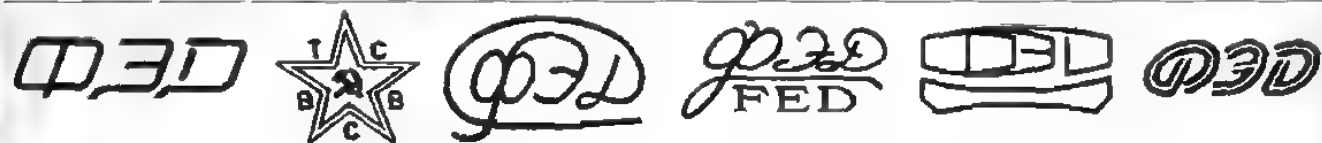
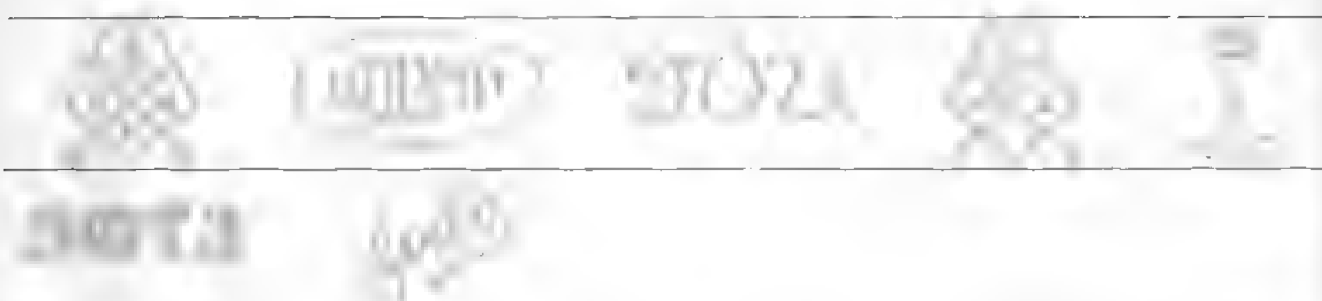
Both models were reputedly created by

D.Z.Bunimovitch. (44)



FEDETTA - Document Moscow Polytechnic Museum

# Logos of the USSR from 1932 to 1990



ФАГ



МИНИАТЮРНЫЕ, ВОЕННЫЕ  
И ДРУГИЕ ОСОБЫЕ КАМЕРЫ



# FED

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ФЗД-1 "ФЭДКА"	93	FED-1 "FEDKA"
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ФЗД-1с, ФЗД-1д	95	FED type 1c, FED type 1d
ФЗД 1е "Berdsk", ФЗД-1 "Red Flag"	96	FED type 1e "Berdsk", FED type 1 "Red Flag"
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НАСТОЯШИЕ ПОДДЕЛКИ ЛЕЙКИ И ПОДДЕЛКИ НАСТОЯЩИЕ ФЭДОВ	100	GENUTNE FAKE LEICA'S AND FAKE GENUINE FED'S
ФЗДэ2	102	FED-2
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ЗАРЯА	106	ZARYA
РОДОСЛОВНОЕ ДРЕВО ФЕД	107	FED family tree
ОБ ЕКТИВ ФЭД	108	FED lenses
ФЗД-10, ФЗД-11	110	FED-10 - FED-11
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## FELIX EDMUNDOVICH DZERJINSKI

If the history of the workers' commune "FED" is a veritable resume of the Bolshevik after-revolution in the USSR, the existence of this enterprise for the production of FED cameras is profoundly connected to that of a single man, Anton S. Makarenko, educator, poet and writer (1888-1939).

This joint history is fully described, interpreted and illustrated in a well documented study by Oskar Fricke which was published in the "History of Photography" (25).

September, 1920 - a first Ukrainian Colony for the rehabilitation of "young orphans of the revolution (besprizorniki)" is established at Poltava under the direction of Anton Makarenko.

1925 - the Leica I is introduced at the Leipzig Fair in Germany.

1926 - With the death of Felix Edmundovich Dzerjinski (born in 1877), founder of the Cheka (15), the terrible Soviet secret police, now in the year of his death known as the OGPU (State Confederated Political Directorate) the Ukrainian Political Commissariat decided to found a "work commune for children" in the outskirts of Kharkov and to baptize it with the name of their "lamented leader", F. E. Dzerjinski

June, 1927 - Anton S. Makarenko is "invited" (46, by the Ukrainian police to come supervise the organization of the brand-new Workers' Commune F.E. Dzerjinski.

He remains the director for eight years.

December 29th, 1927 - Official creation of the Workers' Commune F.E.D. Consisting of 150 girls and boys, 13 to 17 years old, trained by a core of 50 "graduates" of the Gorki colony (47)

By 1932 there are 300 "Communards" (50), a name they like to call themselves, and 600 in 1935.

1927 - government directives forbidding the import of foreign materials.

1928 - Stalin, his power consolidated, launches the first five-year plan. Its objective is to transform a primarily agricultural country into an industrial nation, independent of the "capitalist world."

The Makarenko educational method combines productive labor and secondary education according to Marxist principles which try to eliminate the distinction between physical and intellectual labor.

End of 1929 - the Workers Colony has developed several types of craft productions: woodworking, lockmaking, shoemaking, and sewing. These products sell well and the communards receive their first salaries.

Starting September, 1930 - a group from the Engineering Institute of Kharkov brings to the young worker-students a new aspect of their education, in the form of a university program implemented by directives of the Central Powers: be a part of the industrial development effort.

May - November, 1931 - Thanks to the revenues generated by the sale of their products, and with the help of a state loan, the enterprise actively takes on the construction of several new two-story buildings destined for the mass production of portable electric drills

January, 1932 - inauguration of the new FED buildings and assembly of the first drills, baptized FD-1, copies of an Austrian drill. The FD designation naturally stands for Felix Dzerjinski.

June, 1932 - production of two new drill models, the FD-2 and FD-3, copies of American Black and Decker drills, is begun. Production of 11,500 drills is foreseen for 1933.

April, 1932 - the LEICA II is launched at Leipzig.

June, 1932 - in parallel with the production of portable drills, the construction of a Leica-type camera is planned on June 2nd, under code name "F".

June 21st - a special study department is established within the commune.

October 26th - the first three "Soviet Leicas", faithful copies of the Leica I (A), are assembled.

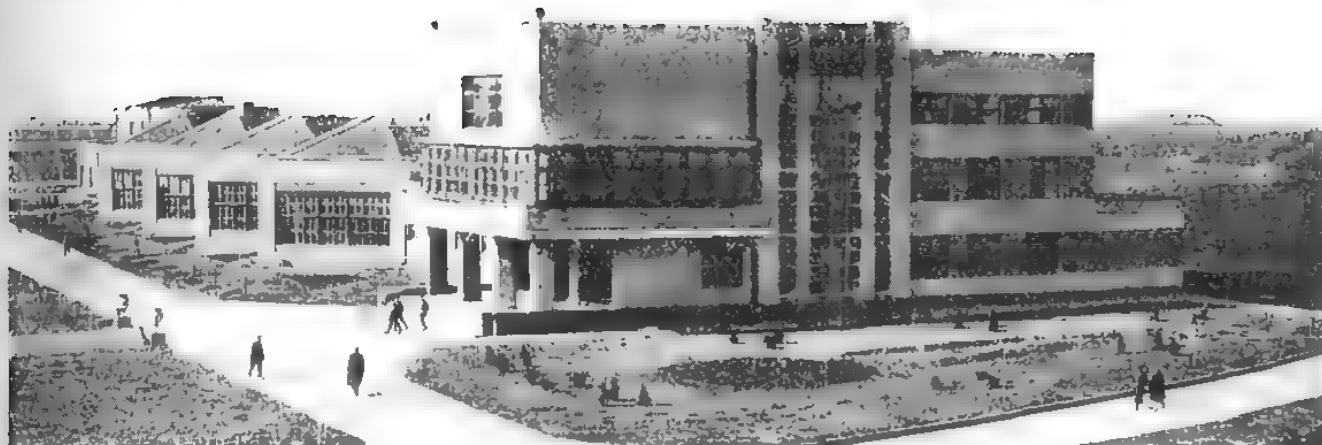
This important news is reported in the official press organ "Izvestia" on November 5th, 1932 but it is not until the January-February 1933 issue of Proletarskoe Foto (Proletarian Photo) that the first image of the "first model" FED appears. It is called the "Pioneer" (see VOOMP(49)). The camera is announced in France in the June, 1933 issue of "Sciences et Industries Photographiques".

The year 1933 is devoted to the planning and preparation for camera production while drill production intensifies.

The challenge for the commune is of vital importance: new techniques and new tooling for the fabrication of the more than 300 parts needed are developed. Interior tolerances of 1 micron are required for the tools. Nothing like this Leica camera copy has ever been mass produced in the field of optics in the Soviet Union prior to this time. Polishing the lens elements requires the utmost precision, and if the first three models from the first series of October, 1932, are 3.5/50mm anastigmats made by VOOMP, the commune is quickly capable of making its own lenses, with the assistance of the GOI.



Anton S. MAKARENKO  
1888-1939



New buildings are erected specially to protect the production unit. 30,000 cameras per year are planned.

Only 30 FED copies of the Leica I are delivered.

To this day, none seems to have reappeared (see p. 93.)

In January, 1934 the production of the FED "1" begins. the first "series-built" FED, numbered 31 to 40, are assembled by the end of January.

The FED and the commune are the topic of a rambling report in the April, 1934 issue of the magazine "USSR in construction" in which the brand-new FED (or FEDKA as the Communards and A. S. Makarenko in his correspondence with Maxim Gorki) is presented.

It is really an extraordinary performance - less than 18 months after the presentation of the Leica "Couplex" at the Leipzig fair, the prestigious camera is copied and mass-produced by a "band of boys and girls" with an average age of around twenty.

In July, 1934 the functions of the state police are transferred from the OGPU to the NKVD (Peoples' Commissariat of Internal Affairs.)

The engraving "NKVD" appears in the beginning of 1935 on the top plates of FED cameras (FED 1b).

December, 1934 - 1800 cameras (type 1a) have been delivered. Some are of lower quality; the top plate is galvanized instead of being chromed and the general finish is not always satisfactory.

1935 is the year for major changes in the commune.

Makarenko is transferred to Kiev in July. He will withdraw back to Moscow in January, 1937 to write (46) until his disappearance on April 1st, 1939.

September, 1935 - assembly of the 10,000th FED. The presentation of the cameras is better and better.

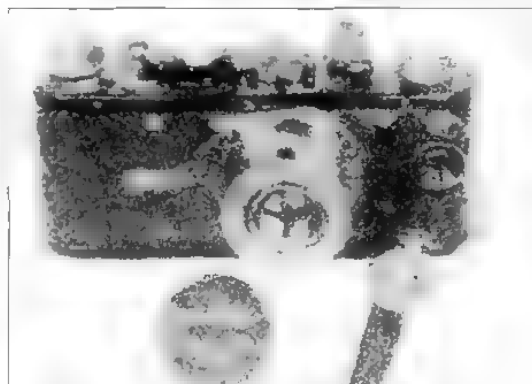
**November, 1936 - 25,000th FED**

The FED's success, along with a diversification desired by the public and the photographic press, in the form of additional lenses, accessories, enlargers, projectors, etc..., imposes changes on the commune's structure.

An increase of 750 new members of the commune is backed up by 400 people from outside.

The need for change corresponds also to a decree of March 4th, 1937 by the Narkompros (Peoples' Commissariat for Education) ordering the abolition of labor communes in the USSR.

Document Sov. Foto, January 1939:  
Factory of the FED Labor Commune in Khar'kov  
(by permission of Oscar Freke)



FED PIONEER - Document Sov. Foto



Young male and female communards at work.

Document: Musée Polytechnique de Moscou





FED instruction book, exposure tables, and quality control tag for FED # 16721 and 3.5/50.3mm lens #17322, dated February 8th, 1936.



FED manual, by D. Bunimovitch, exposed at the Moscow Polytechnic Museum

*An extract from "Pedagogical Poem" by A. Makarenko 1925-1935*  
(Moscow Editions)

In 1932, the word is going around the commune:  
- "We're gonna make Leicas!"  
The guy who said it was a Chekist, a revolutionary, and a worker, not an engineer, nor an optician, nor a camera maker. The other Chekists, revolutionaries and Bolsheviks, said:  
"Okay. Let the Commune make Leicas!"  
The communards, at that point, were not very excited.  
- "Leicas, naturally, we're gonna make Leicas!"  
But hundred of people, engineers, opticians replied: - "Leicas, you say! Ha-ha!"  
A new struggle started, one of those infinitely complicated Soviet operations that you see a lot of these days in our country. A struggle made up of hundreds of gasps of breath, of intellectual wing beats, of flights in Soviet airplanes, of drawings, of silent lunacies inside laboratories, of brick dust from construction, and... from redoubled attacks, again and again, reckless charges driven by rows and rows of communards in workshops torn apart by a breakthrough. And all around us, the same doubtful sighs, the same blinking eyes behind thick eyeglasses:  
- "Leicas? Made by these kids? Lenses polished to a micron's tolerance? Good luck!"  
But five hundred young boys and girls were already headed down the road of microns, into the spider's webs of high precision lathes, into the infinitely delicate sphere of tolerances, of splintered aberrations, of optical curves, turning around, laughing, toward the Chekists.  
- "Go ahead kids, Go ahead and don't be afraid!" said the Chekists.  
The beautiful, slender F.E.D. factory developed in the middle of the commune, surrounded by flowers, by asphalt, by fountains. The communards recently placed on the desk of the People's Commissar the 10,000th F.E.D., that impeccable and elegant camera.  
Many things are already part of the past, and many have been forgotten. Primitive heroism was just a long time ago, along with the slang of the "milieu" and the musty smells. Every spring, the commune sends dozens of workers from the "school of hard knocked" straight, to halls of higher education where they will become engineers, doctors, historians, geologists, aviators...  
Kharkov 1925-1935.

As the F. E. Dzerzhinski commune was not under the jurisdiction of the Narkompros, it was not immediately affected by the new statutes, but the days of shared labor and education were over. The first accessories appeared at the end of 1937, in the form of a photo-electric light meter, of a bizarre self-timer with a mirror for aiming the camera, and darkroom equipment. In November, 1937 a FED equipped with a sports finder directly inspired by the Leica version, is introduced in Sov. Foto. For the sought-after interchangeable lenses we must wait until end 1938:

- the 4.5/28mm wide angle lens and its finder
- the 2/50mm
- the 3.5/50mm reproduction lens
- the 5.9/100mm and its finder. (maximum useful opening is f:6.3 (see p. 100). The f:5.9 is replaced by the f:6.3/100.

Announced in 1937, the new "FED B" model appears only in 1938. Identical to the FED Standard, it sports (like its model, the Leica IIIa) slow speeds on the body front (1 - 1/20s.) and the maximum shutter speed is now 1/1000s.

Only 40 copies of the FED B are produced.

The "FED S", reputedly equipped with the 1/1000s. shutter and the fast f:2/50mm lens, is produced in parallel with the classic FED, in minute quantities.

That same year, a manual authored by D. Bunimovitch (44) and significantly inspired by the Leica Manual, is published.

A second edition is published in 1942... (!)

In 1939 two historical events are recorded on the top plates of the FED (FED 1d):

Ukraine loses its independence; consequently the engraving NKVD UkSSR becomes NKVD SSSR.

And the FED Commune becomes a Kombinat (from the English word "to combine"), an economic structure more in agreement with the evolution into a more structured enterprise, and the camera body is so engraved.

The 80,000th FED is announced in the January, 1939 issue of Sov. Foto as having been assembled during the last days of the year 1938. In mid-1939, the 100,000th FED is celebrated in turn by the press.

In 1939 the total production of cameras in the Soviet Union, all models and makes included, exceeds 478,000 cameras, of which 34,000 made in Kharkov.

Just over 175,000 FED are produced from 1934 to 1941. (These are the official figures; the total is in reality surely more than 180,000, of which most were made prior to 1941.)

On June 22, 1941 Germany invades the Soviet Union, thereby breaking the Germano-Soviet non-aggression pact. Given the German territorial advances, Stalin orders more than 1300 enterprises to move immediately to the Urals and Siberia, taking all their machine tools with them.

From September 5th to October 16th the FED Kombinat is evacuated to Berdsk, 40 km (25 miles) from Novosibirsk, beyond the Ural mountains.

Those workers not mobilized, are organized under the direction of chief engineer Gorbunov but do not begin mass production of cameras or electric drills.

A few hundred cameras are assembled from spare parts. (Old-timers report that during the war, a ham and a FED offered to an administrative official could get your file forgotten for awhile...)

But most of the tooling, the production machines, and the in-process cameras, never make it to Berdsk, but are redirected under "orders" to "another" enterprise. FED management are not informed about the destination of their former production equipment.

However, a "selection" of FED technicians is secretly delegated to "another location" of Siberian exile. Probably to assemble, later to produce from scratch, the cameras needed by the Army. Leningrad is under siege and cannot produce anything. This explains (my theory) how the FS-2 came to be made with the KMZ emblem.

Those evacuated from Kharkov are themselves assigned to the fabrication of parts for aviation production, of carburetors, injector pumps (Lavotchkin LA5), and so forth, under the direction of the Soviet Army Air Force. In this setting the former "communards" are past masters of techniques such as aluminum injection molding and high-precision surface treatments.

October 25th, 1941 Kharkov capitulates to the German troops. The city is practically razed, but in the ruins of the FED plant the conquerors are surprised to find copies of "Leica" cameras and "Leitz" microscopes. But we will never know; the FED archives were burned to a crisp and only the "Party" archives were evacuated.

After long and particularly bloody battles, Kharkov is liberated on June 23rd, 1943 by the Red Army. Immediately afterward, several former FED workers return as volunteers to their ruined city of Kharkov, between 1943 and 1945.

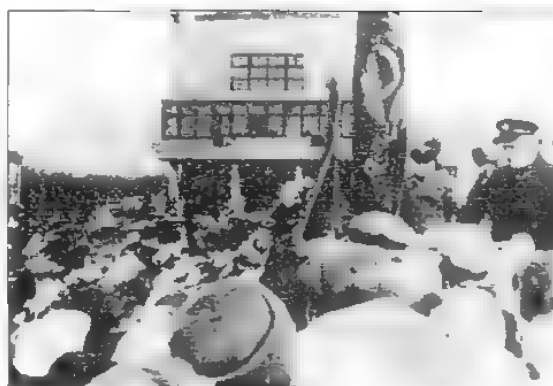
In June, 1945, orders are received at Berdsk to recommence camera production. In January, 1946 three workshops are affected to this goal, with great difficulty.

Using some bodies and lenses remaining from the evacuation, and taking advantage of the experience of a few workers who had been evacuated from Kharkov, a few "dzerjinskians", essentially without any supervisory guidance, recreate tooling and equipment. In July, the dimensioned drawings are ready and the often clumsy manufacture and assembly of the first postwar FED cameras (FED 1e) commences. Only a few hundred cameras are produced.

During the first quarter of 1946 some 3.5/50mm lenses are once again produced, despite the absence of qualified personnel. The collectivity promises to increase by a factor of five the pace of production. By June, 1946, Party documents show that 79% of the plan's goal has been accomplished.

On September 6th, 1945 the FED factory received the Order of the Red Flag of Labor (Ordenia Trudovogo Krasnogo Snamien) for its heroic conduct during the "Great Patriotic War."

In 1946 the NKVD is reorganized and subordinated to the MVD. (45) FED abandons its statute as a Kombinat and becomes an independent factory.



Reunion of the Dzerjinskians with I. D. Papavine, great explorer and avid FED user, in 1939 in the factory's courtyard.

Document FED Kharkov



Façade of the FED factory c1939



Workers evacuated from Kharkov shown in the assembly workshops for aircraft motors, in 1942 in Berdsk, near Novosibirsk.

Document FED Kharkov



FED - A assembly workshop around 1980  
Document FED

In July, 1946 the return to Kharkov is decided. Already between 1943 and 1945, a few workers had returned to Kharkov, with the mission of reconstructing the factory.

From September to November, 1946, nine trains from Berdsk transport to Kharkov the remaining personnel, the tools and production equipment and... great hopes for the future.

In January, 1947 the machines are in place and the factory receives the order from the Ministry to recommence mass production of cameras, which actually begins starting in March, 1947. With the return of demobilized soldiers, the workforce is once again complete.

In 1947 in Krasnogorsk, near Moscow, the FED-ZORKI venture is started (see KMZ chapter.)

In the beginning of 1948 the factory produces 800 sets of production tools but it is only in June, 1948 that the first 20 new FED "Kharkov" are painfully assembled.

To mark this occasion, serial numbering is started at 200001 (or perhaps 200010?). The first 1800 bodies receive, engraved on the top plate, the citation of the Order of the Red Flag of Labor. (FED Red Flag) Party document.

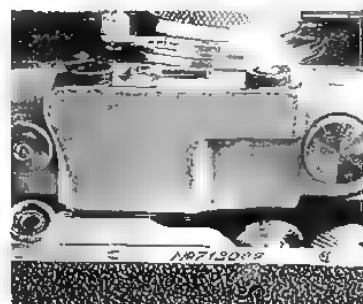
And the NKVD engraving is replaced by the equivalent from the NKAP (Peoples' Commissariat for the Aeronautical Industry.) By December, 1948 production reaches 300 units per month.

At the same time FED is fabricating parts for agricultural tractors. Of the 128 different items in their catalogue, many are in aluminum castings or injection moldings. The techniques involved had been developed over considerable time during the war. The body of the FED 2 is a clear demonstration of this. The following series appears with a redesigned FED logo (FED type 1f.) The fit and finish are in progressive improvement, and during 1953, around serial number 400,000, the camera is equipped with a 1/25s. shutter speed and a few other improvements. (FED 1g)

In 1952 there is a crisis leading to reduced sales, and the FED also has a serious rival in the marketplace, the Zorki.

From 1934 to 1941, then from 1946 to 1955, more than 700,000 "Leica copy FED" with essentially unchanged appearance (if one excludes the variations in the engravings) were made. An evolutionary model of the FED had already been envisaged before the great patriotic war, but the plans had disappeared along with the tooling during the exodus.

Between this FED 1a #1315  
and this FED 1g #713089,  
20 years went by - all with  
the same body.



Another successor to the FED 1 also makes an appearance in 1955: the FED 2. By 1970, nearly 2 million will have been made. In 1971, the factory becomes "the FED Mechanical Production Unit."

Since its inception FED has been and remains a factory producing popular, primarily mechanical, inexpensive but reliable photographic cameras. None of the attempts to get out of this track was ever seriously pursued, probably more due to the "House Spirit" prevailing rather than to external constraints or to technical limitations.

From 1981 to 1985, the General Manager of Production is a certain V. P. Makarenko, whose name is illustrious within the concern's walls.

After the collapse of the USSR in 1991, FED becomes an independent Ukrainian factory.

As Oskar Fricke recalls in his historical study, in 1963 Anton Makarenko had written, "... and perhaps the FED will become better known than the Dzerzhinski Commune." He was right all along.



Main entrance to the FED factory c1995  
Document J.C. Lombard

# FED "original"

ФЭД

## FED "original" October 26th, 1932

3 units assembled. (The event is reported in the very official "Izvestia" newspaper.

## FED "original" 1933

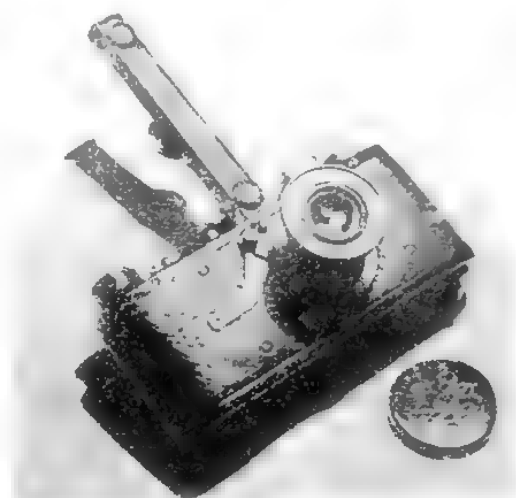
30 units produced. Exact copy of the Leica 1(a).

No surviving examples. (51)

3 prototypes, 30 pre-series bodies, and then with the FED 1, a succession of 8 models. The resemblance to the Leica is not limited to the mere appearance.

FED-Original

*Document Proletarskoe Foto, janvier 1933  
Document Oskar Fricke*



# FED-I "Fedka"

# ФЭД-1 "Фэдка"

## FED-I January, 1934

Pre-series - numbered from 31 to 40

Rangefinder full frame 35mm camera. Leica II copy.

Industar-10 anastigmat lens, copy of the Elmar.

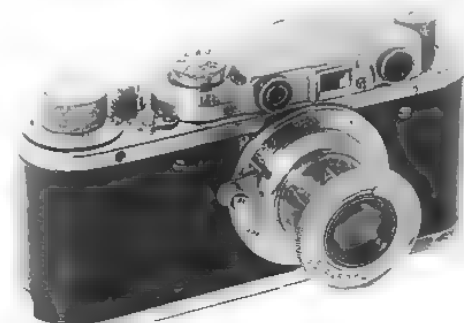
## FED-I "Fedka"

More than 700,000 units produced between 1934 and 1941, then from 1946 to 1955.

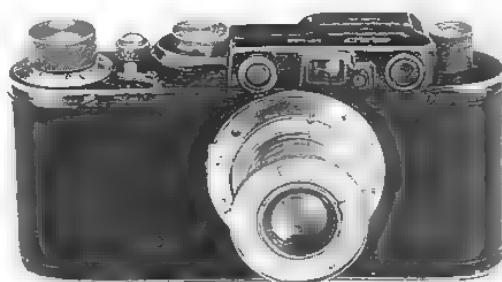
Mass produced from early 1934 onward.

8 models, 4 prewar and 4 postwar. they are identifiable by the engravings on their top plates. The description of these models, the details of the transitions between them, and the variants will take the collector to a fascinating universe in which the histories of the USSR and of the Ukraine are presented imperceptibly.

The large number of variants of the models 1a and 1b is not only the witness to the life and evolution of the F.E.D. enterprise; by the evidence of certain details, imperfections and originalities, it is also the concrete evidence of the daily gestures of these young "communards", apprentice jewelers. Each FED and FEDKA that we now collect so carefully gives a bit more immortality to the young "communards" who made them.



FED-I #58 *Document M P Mladek*

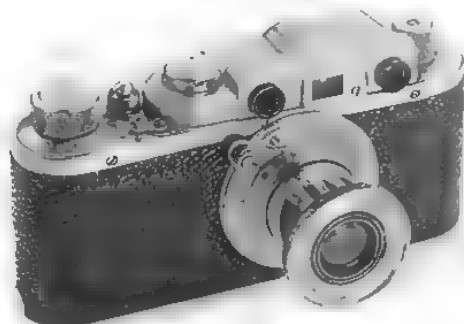


FED-Ia #253 *Document Peter Coeln - Leica Shop Wien*

First versions numbered 41 - ca. 1000/1200

- 1: nickel plated body with fine, black vulcanite covering.  
(bodies known are #58, #60)
- 2: black lacquered body with fine, black vulcanite covering.  
(bodies known are #253, #279, #400 - 425)
- 3: chrome plated body with fine, black vulcanite covering.  
(estimated from about #500 - 700; body known is #575)
- 4: chrome plated body with textured vulcanite covering.  
(estimated from about #700 - 1200)

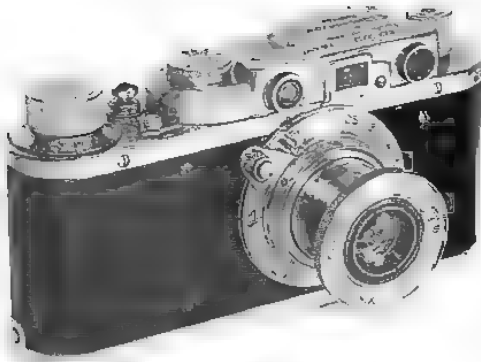
*Estimations based on data compiled by M. P. Mladek and J. L. Princelle with the P. Coeln (Leica Shop - Wien) constructive collaboration .*



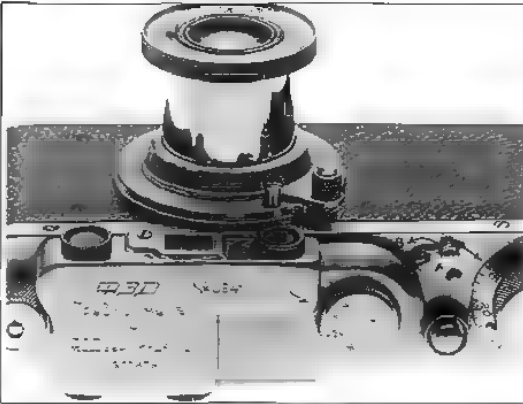
FED-I #5941 *Document X*

## FED type 1a, 1934 - 1935

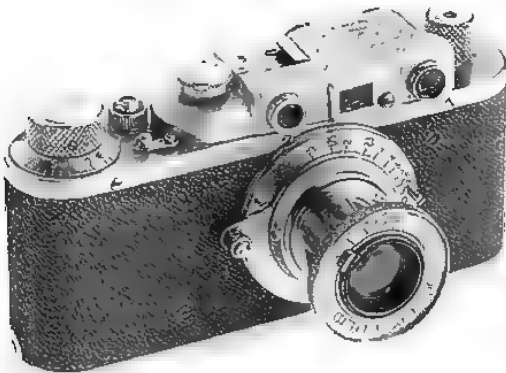
From #1000 to #6,000 (+ a few units between 6000 and 7500)



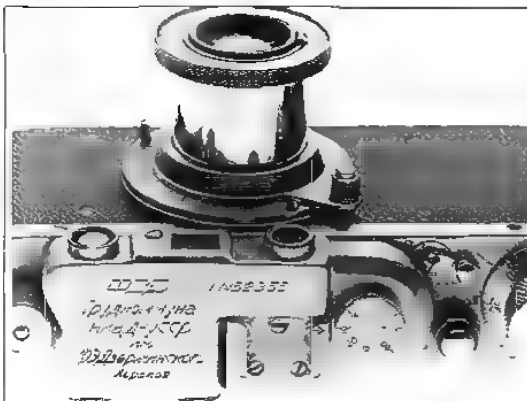
**F1a** FED Type 1a # 575 - variant 3 and 6



**F1a** FED Type 1a - variant 7 #5941



**F1b** FED Type 1b - # 29246



**F1b** FED Type 1b

Top plate and window resembling those of Leica II  
 Finely knurled advance and rewind knobs. Speed indications Z (Zeit - Time in German) 1/20s - 1/500s. on a knob placed in a slight cavity.  
 Rangefinder image with greenish (sometimes bluish) tint with rangefinder spot showing a pink tint for better contrast.  
 Rounded rectangular RF cam  
 Mushroom shaped shutter release button  
 Adjustment port in the back (until end '34 - beginning '35)  
 No accessory shoe (112) Satin chrome finish

### Variants:

1 to 5: FED-1 (see preceding page.)

-6: The parts that would normally be chromed are "galvanized." This transitional finish is the result of the factory's having run out of stock of chrome. This occurs between #1300 and 1800, and again around 3400 to 4600. (see #1815 opposite)

-7: Transition with the following model, with viewfinder window of the FED 1b. (see Leica Fakes P 96 - 99.)

-8: Shutter curtains in "green" cloth.

FED

# 5941

Labor commune

"bearing the name of"

F.E.Dzerjinski

Kharkov

(N.B. the characters in the engraving are straight, not italic)

## FED type 1b, 1935 - 1937

# 6,000 to # 55,000

Rectangular viewfinder window typical of FEDs with a crease on top of the finder, up to around # 15,000

Appearance of the engraving signifying membership in the NKVD in the Ukraine.

Accessory shoe around #8/9,000. Larger engraving around #40,000.

Smaller speed knob without cavity, around #20,000. More rounded crease on viewer window around #20,000. Coarser gripping surface on control knobs.

Larger engraving on the top plate around #22,000. An ergot shows up at the bottom of the accessory shoe.

### Variants:

1: identical to the 1a, but with engravings of the 1b (beginning of the series.)

-2: Several different coverings, sometimes gray/green.

-3: Personalized engravings on the camera base (e.g. #52865, but also seen on models 1c and 1d.)

-4: Very fine textured covering (seen on #16321), as on the very first units.

Benchmarks: Sept. 1935 - 10,000th FED; Feb. 1936 #16721 with lens #17322.

FED

# 52865

Labor Commune

NKVD - UkSSR

"bearing the name of"

FEDzerjinski

Kharkov

Starting in 1937 the FED production becomes more regular; the "communards" mastering the manufacturing techniques, the appearance of the FED improves steadily. Only the position of the levers on the lenses continues to be irregular.

**FED type Ic, 1937 - 1939**

# 55,000 to # 130,000

80,000th FED at end 1938; 100,000th FED in June, 1939.

On the top plate, the speed knob becomes "angular", as on the Leica III.  
The tab in the accessory shoe disappears.  
The RF cam evolves into a triangular shape.  
Base plate locking tab becomes wider (around #80,000.)

A range of accessories and lenses is offered:  
the 4.5/28mm + finder.  
the 2/50mm.  
the 3.5/50mm.  
the 6.3/100mm (the prototype is an f:5.9) + finder  
angle finder, sports finder for 28 to 100mm, self timer, pocket tripod, loading device, light meter, filters, close-up lenses, sunshades, negative inspection loupe, developing tanks, and so forth.

FED	# 57208
Labor Commune	
NKVD - UkSSR	
"bearing the name of"	
F E Dzerjinski	
Kharkov	

**FED type Id, 1939 - August 1941**

#125 000 - #174 000 / 180 000 ..

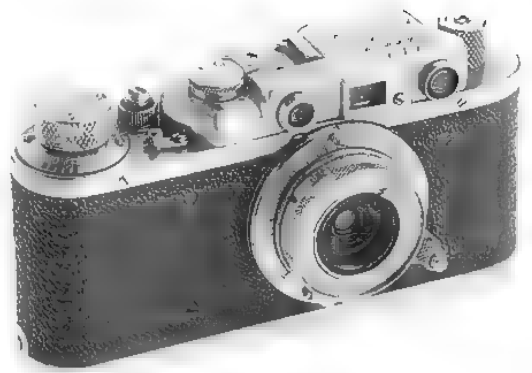
The central screw on the top plate is off center and thus becomes completely visible. The screw under the rewind button is no longer visible at all. Collar around the release button is cross-hatched.  
1939. The Ukraine loses its "independence" and the engraving indicates USSR instead of UkSSR, and shows the "new status" of Kombinat.

Forecast for 1941: 40,000 FED cameras. But by June, 27,000 have been built. Thus several hundred in process cameras are evacuated to Berdsk.

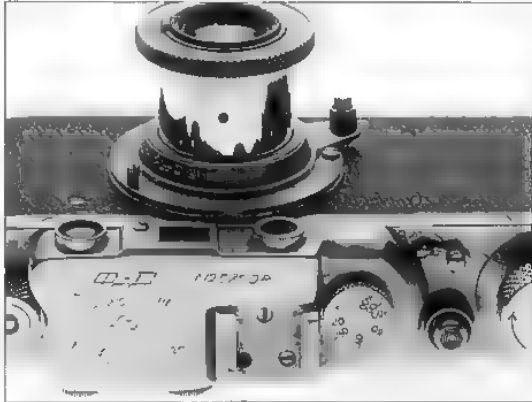
**FED type Id, 1942 - 1941**

Included in the numbering between 174,000 and 178,000 are several hundred bodies assembled in BERDSK during the war, from evacuated elements which actually arrived at their destination. (see p. 91.)  
There may be an original variant labeled FED Siberia (see p. 100.)

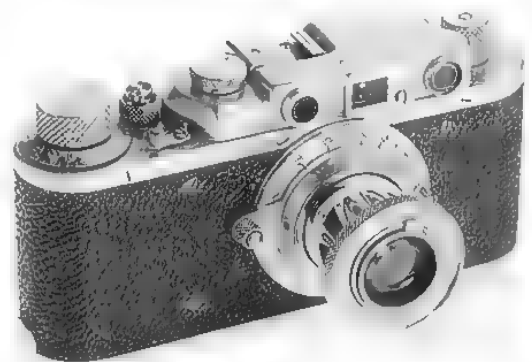
FED	# 172105
NKVD - URSS	
Kharkov	
KOMBINAT	
"bearing the name of"	
F E Dzerjinski	



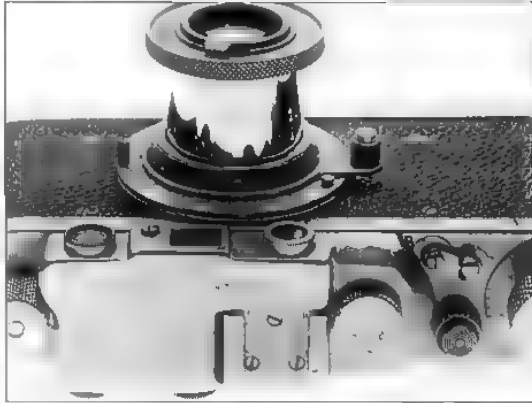
F I c FED Type Ic - # 57208 with the 2.8cm



F I c FED Type Ic



F I d FED Type Id - # 172105

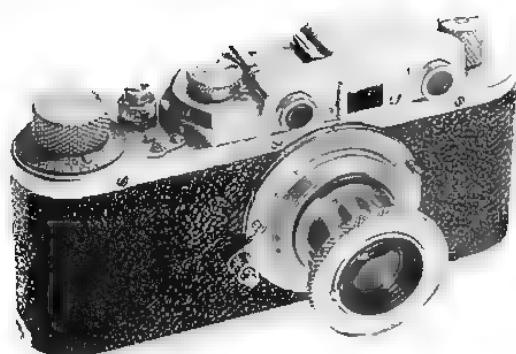


F I d FED Type Id

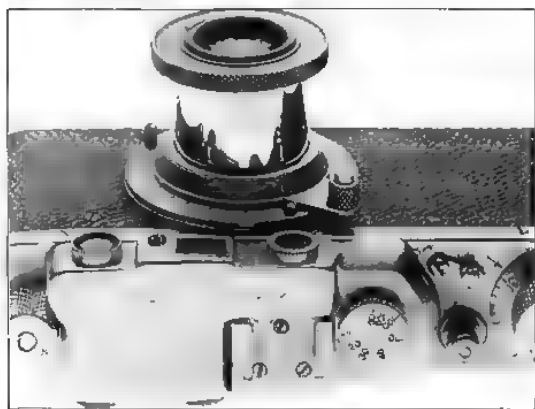
In June, 1945 the FED factory that was sent off to Berdsk receives the order to start building cameras once again.

Very few original "communards" remain among the male workers of the evacuated F.E.D. factory, and the production tooling has been "lost" during the exodus to Siberia.

So starting with only some spare parts and a few unassembled cameras, with the experience of a few older employees, and an extraordinary will to succeed that the blueprints (dimensioned drawings) then the tooling, are recreated. Then, in technically difficult conditions but with a will of steel, the first new FED cameras see the light of day.



**F1e** FED Type 1e



### **FED type 1e,"BERDSK" 1946**

**F1e**

# c173600/174000 - c #183000 (and up)

Built in Siberia during the first half of 1946, up to apparently a thousand units are produced, created partly from left overs and parts brought from Kharkov. The numbering is probably based on a bit of fantasy, as many top plates, already stamped and engraved prewar, were probably used. (see p. 91.)

Uncoated lens.

Occasionally, with no visible screws on the base.

FED  
Made  
in the factory of  
F.E.Dzerjinski  
in Kharkov

# 174279

### **FED "RED FLAG", 1948**

**F1RF**

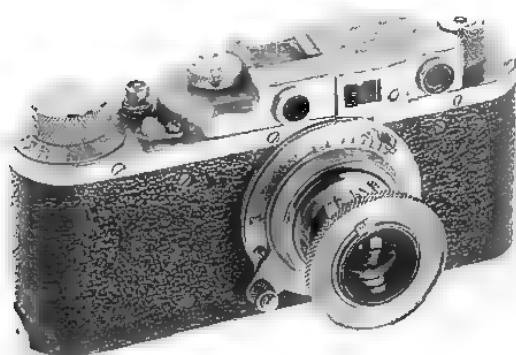
# 200 000 - # 201 800

Around 1800 units produced (with some built in Berdsk). Identical to the FED 1e, but with finer knurling (1a) on the advance and rewind knobs. Finer grained covering material; base plate with visible screws, like the prewar models. Quality of finish rather mediocre.

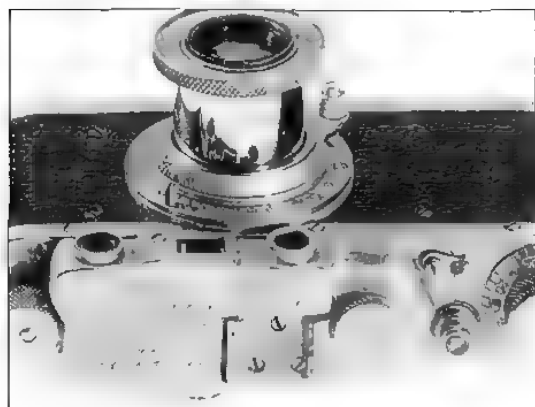
Shutter assembly in brass, rather than in aluminum (as on the TSVVS.) Coated lens. The engraving has the initials N.K.A.P. (Peoples Commissariat for the Aeronautical Industry.)

Having become an "independent" factory (having shed the yoke of the ex-NKVD), FED keeps in close touch with the Ministry of the Aeronautical Industry under whose orders FED functioned during the war. (see TSVVS p. 99.) Several numbers are known, all in the range #200,xxx

Benchmarks: The FED "RED FLAG" # 201280 is delivered with a passport printed in Berdsk and countersigned the 19 August 1946.



**F1RF** FED "Red flag"



NKAP - URSS  
Order of the Red Flag  
of Labor  
Made in the factory of  
F.E.Dzerjinski

FED # 200161



More than 175,000 FED cameras, copies of the Leica II, saw the light of day prior to the "Great Patriotic War".

1934 : 4,000	1938 : 29,000
1935 : 12,000	1939 : 34,000
1936 : 16,000	1940 : 32,300
1937 : 22,000	1941 : 27,000 of the 40,000 planned

(italicized numbers are estimates compiled by Oskar Fricke )

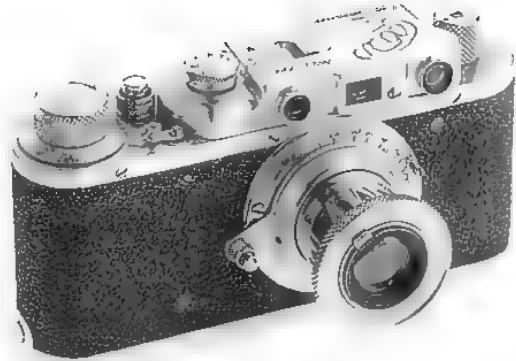
After the war, more than 500,000 FED cameras are produced in Kharkov .

1946: c1,000	1952 : 52,000
1948 : 1,800	1953 : 83,000
1949 : 20,000	1954 : 136,000
1950 : 30,000	1955 : 140,000
1951 : 40,000	

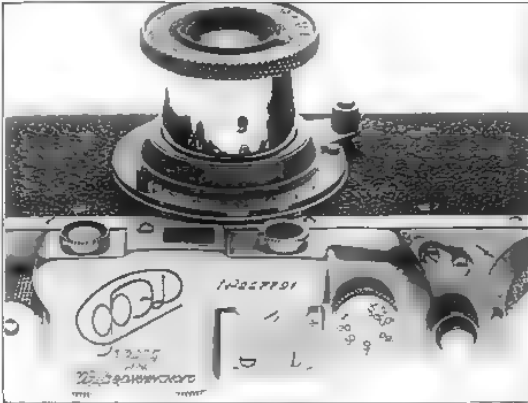
**FED type 1f, 1949-1953**

c # 201 800 - c # 400 000

Identical to FED 1e. Finish getting progressively better. The chrome is brighter, the release button is flattened, chromed, and without any engraving. A new FED logo in cursive script decorates the top plate. The coated lens is delivered with a bakelite protective front cap, a copy of the Leica cap, and gets the new, standardized diaphragm scale: 3.5-4-5.6-8-11-16.



**F1f FED Type 1f**



FED

N° 227791

made in the factory of  
F.E.Dzerjinski

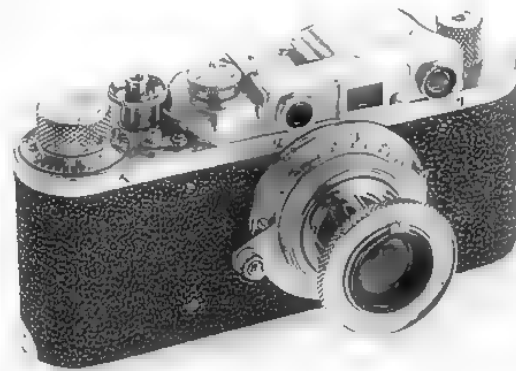
**FED type 1g, 1953 - 1955**

c # 400 000 - c # 800 000

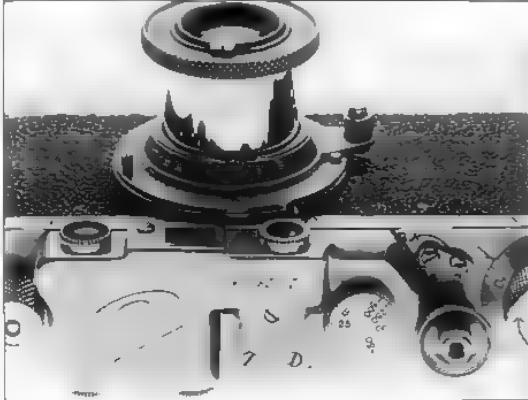
Identical to FED 1f but with shutter starting at 1/25s. The release button is equipped to receive a standard cable release. The new collar around the shutter release button is now "dished." Only the FED logo is now engraved on the top plate. Finish continues to improve.

Around #500/550,000 (end 1954), as on the ZORKI, the serial number goes to the rear of the camera body, but without the year prefix on the FED. The lens numbers, previously stamped on the rear of the focusing ring, are moved to the front, and are now engraved.

Benchmark: FED #565077 with Industar-10 FED lens #8476, was produced in February, 1955. The #710605 in 27 December, 1955.

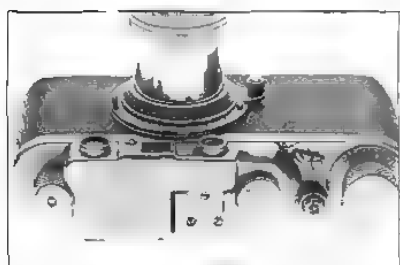


**F1g FED Type 1g**

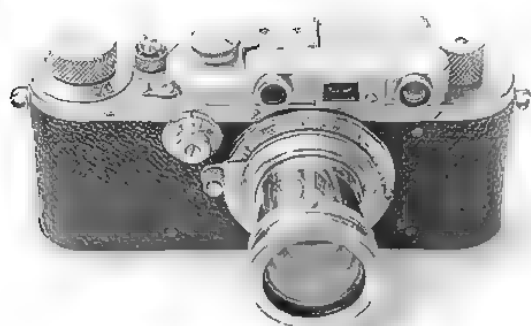


FED

N° 414927



FED-S



FED-B

Courtesy of Pavel Pashinski

As happens at Leitz with the Leica III, in 1938 FED investigates and proposes, in response to the demands of the specialized press and of users, two new models with a faster lens, a faster top shutter speed, but also with slow speeds.

These optical and technical improvements are the work of L. A. Bruk and D. M. Krivorochenko.

**FED-S (C) 1938 - 1941 # 59309 - 1c**

**F20**

Maybe fewer than 2,000 units.

Identical to FED 1c and 1d but with 1/1000s. top speed. Furthermore, the camera, now equipped with the f:2/50mm lens, generally has a much better level of finish.

Benchmark: FED #62887 with 2/50mm lens #21623, was produced in 21 June, 1938. "S" was printed on the passport.

**FED-B (Б) 1938**

**N° 74386 - 1c**

**F30**

**or: ФЭД - Б # 3 - 68**

**F31**

Identical to FED 1c or 1d, but with slow speeds and 1/1000s. top speed, which makes it a copy of the Leica 111a of 1935.

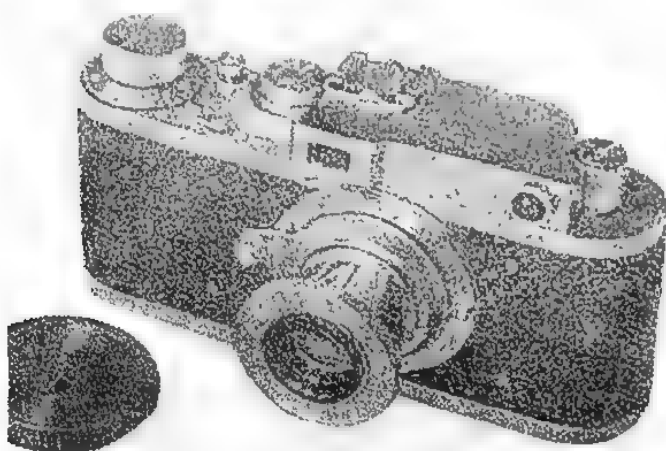
Also delivered with the f:2/50mm lens.

Reputedly only 40 units were produced.

*Warning:*

*The introduction of this camera in "300 Leica copies" (21) caught the attention of the counterfeiters. These individuals could not resist the temptation to install a slow speed device, Leica or another, on the FED. One occasionally finds these in some collectors swap shows.*

## FED "2" prototype



Document: No set Press

**FED "2" Prototype c.1940**

**F40**

Perhaps conceived by D.M. Krivorotchenko.

Starting in 1939, after the development of the FED "S" and "B" models, the engineers feel a legitimate desire to further develop this camera line.

During the '40's a prototype is introduced.

While the body itself is unchanged, the viewer is now axially located, and combined with the rangefinder.

Maybe this took place under the influence of the Zeiss Ikon Contax?

The war prohibits production of this camera. No camera body of this type survived, as far as we know

*To rediscover this trend we must wait until after the war, for the Foca 2-Star in France in 1945, the Canon S II in Japan in 1946, the production model FED-2 in 1952, and... the Leica M3 in 1954.*

## “ТОПОГРАФИЧЕСКАЯ СЛУЖБА ВОЕННО-ВОЗДУШНЫХ СИЛ”

## “TOPOGRAPHIC SERVICE OF THE ARMY AIR FORCE”

**FED T.S.V.V.S (1948 ?) 1949 and 1950**

The TSVVS shown opposite was for a long time the lowest-numbered unit registered. Recently however, #7 (1949), #22 (1949) and #27 (1948!) have appeared. #901 remains the highest number seen to date.

Known in the USSR as “the Generals’ FED” this hybrid camera, with its Contax lensmount on a FED body, bears no factory marks, a situation which is not unusual in the Soviet Union for material with a military vocation. Engraved on the top plate are the red star with hammer and sickle, official military symbols, and the initials TSVVS with underneath, the year of production - 1948 (questionable), 1949, or 1950.

During the world war in Berdsk, Siberia, FED works for the Soviet Army Air force. Once back in Kharkov, FED begins working under the aegis of the Ministry of Aeronautical Affairs, and marks its production accordingly. (see the FED, Red Flag model, p. 88.)

Thus it was natural that this ministry bestowed on FED a few hundred ZEISS Sonnar f:1.5 and f:2 lenses, a tiny part of the “war booty” recovered in Germany by the Red Army.

FED adapted on its body a reinforced mount capable of receiving the focusing helicoid of these bayonet mount lenses.

To honor this order, only the best materials are used. The body is in brass rather than aluminum, the top plate and other control knobs are chrome- or nickel-plated. The body covering is in black or blue natural leather, and all these elements together give the TSVVS an exemplary finish.

So we have a Leica-inspired body with a Zeiss bayonet, the best of all worlds.

In Japan at the same time, Nikon puts its Nikon I on the market.

Technical characteristics identical to FED Red Flag, but with smaller viewfinder window (0.3x) still showing the 50mm field. (for aerial photos, this finder gives a better overall view), more robust accessory shoe, often off center, as if to accept a special finder (on #705, among others.)

Focusing helicoid and lens mount for Zeiss Ikon Contax inner bayonet without infinity stop, but with a little lever added. Strap lugs.

**Variants:**

F90 - dark blue leather                      F91 - black leather

F92 - one copy in “white leather” reported in Moscow in 1988

F93 - NO NAME: Several copies with no engraving, both with and without strap lugs. (#21, #22, #113)

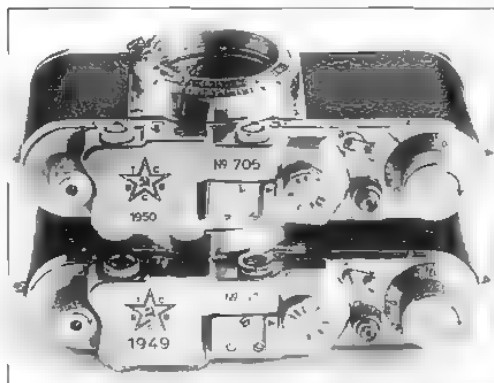
F95 - olive drab (green) with “mother of pearl” look

F96 - gray with “mother of pearl” look

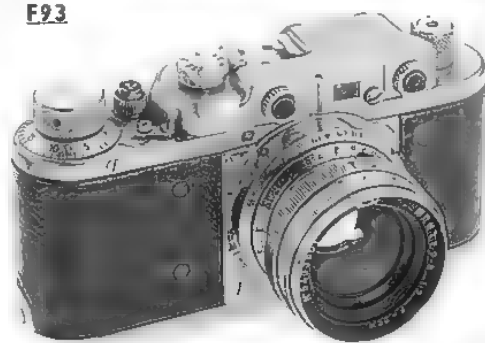
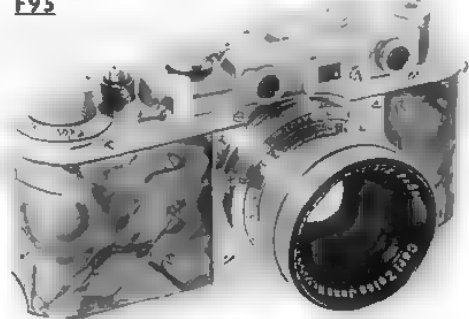
**Warning:**

First presented to the West by Dieter Scheiba in Herman Van De Velde’s book “Cameras uit Rusland” in 1988 (55), then in more detail in “300 Leica Copies” in 1990 (21), the TSVVS generated a fair amount of greed among Leica copy collectors. Some ex-Eastern zone counterfeiters rapidly rose to the occasion. It is therefore necessary to be very prudent and to pay close attention to the specifications of any such model proposed to you.

S

**F90****TSVVS #41, “The General’s FED”** Doc. P.B

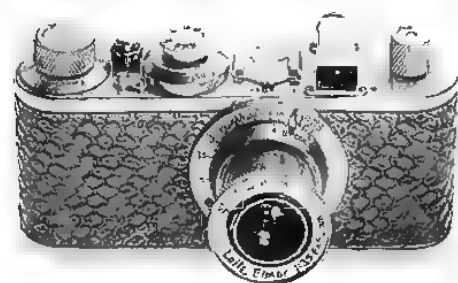
Document Dieter Scheiba

**F93****TSVVS “No Name”** Document Auktionshaus- Cornwell**F95****TSVVS with pearly olive green finish.** Doc. M.P. Mladek

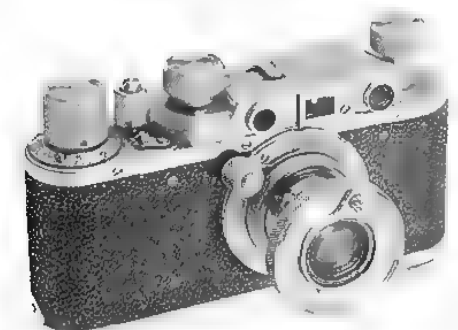
# Genuine fake Leica's and fake genuine FED's



F50 Genuine Fake Leica made from a FED 1a c1935.



Document X



FED "SIBERIA" or FED "PAULUS" ?

## Fake Leica's

First presented to the world of iconomechanophiles (87), by Oskar Frücke (25), "genuine" fake Leica's are without exception pretworn FED's and as such, historically very interesting. The model shown here is a transitional FED 1a/1b. According to its original owner, this FED has most likely been in France since 1939, having been received as a "gift" by a ranking member of a communist cell, from ... the French Communist Party at the time. It was supposed to be a "Leica" camera. It served its owner, a member of the French Resistance, during the German occupation 1940-45.

A second explanation of the existence of these fakes comes to us from Poland, another country occupied during the second world war: German soldiers found to be pillaging normally suffered the death penalty. Under the circumstances, possession of a Russian camera was risky. So for a few Marks, Mr. A. Kosiński, an "enlightened" camera repair man in Warsaw, would transform a very compromising FED into an innocent "Leica" ... These two versions of history both have a certain ring of "truth." What can

be said with certainty is that these cameras were never engraved in Kharkov. This being said, what was done in 1940, and maybe in 1990, was done, and certain versions of fake Leica should sometimes be in the category of "fake FED-Leica's" (see next page.)

F50 - "Leica" made from a FED.....

F51 - "Leica" made from a ZORKI... ..

## FAKE LEICA REPORTER and real ZORKI 250

Fake LEICA REPORTER and genuine ZORKI 250. The talents of various counterfeiters have not been restricted to mere engravings, and at collector gatherings one sees superb counterfeits of the Leica REPORTER, the Model 75 and experimental bodies, as has been generously revealed in books about the Leica. (105)

250-shot LEICA Reporters have been, for at least the last 20 years, the subjects of counterfeits "Made in Poland". Apparently this "art form" has attained new heights, and the prices of these collector's objects are often very close to those asked for genuine originals.

Good work has its price.

## FED "SIBERIA"

c. 1940

F70

## FED "PAULUS"

c. 1990

F71

In 1988, well before the time of the cameras discussed above, I was apprised of the existence of a FED "Siberia." It was described as a FED with oversized control knobs, for use with gloves in the frigid reaches of deepest Russia...

Probably reproduced from a genuine original, the FED's of all engraving types known as "PAULUS" (54) by their Polish dealers, showed up regularly at western collector fairs in 1992-93. These are counterfeits, but extremely well made, and they will most likely rise in value as the years progress.

# НАСТОЯЩИЕ ПОДДЕЛКИ ЛЕЙКИ И ПОДДЕЛКИ НАСТОЯЩИХ ФЭДОВ

The topic of Fake Leica/Fake FED is covered in more detail now than in the first edition. The success of these "horrors" in the collector community, both to sophisticated collectors and sometimes to victims, compels me to offer some supplementary information on the subject. Without pretending to cover all the possibilities, here are some of the engravings seen recently in European shows. Some are nevertheless interesting and show a certain degree of imagination on the part of the eastern European counterfeiters, imagination which equalled only by their avidity for hard currency.

## LEICA "LUXUS" or LEICA "SAMOVAR".

**F52b** (illustration page 100)

Many are the western tourists who, returning from Russia, show off with great pride the Leica (sometimes a real one) Luxus they bought at the flea market in Moscow. Let me reassure them that these are all fakes.

Variants:

- F52 - genuine "gilded" Couplex ... (actually copper. Omigod!!)
- F52 b - fake "gold" Couplex ... (FED or ZORKI in copper)
- F53 - genuine "gold" Leica standard (actually in copper. Omigod!!)
- F53 b - fake "gold" Leica standard.

## FAKE ENGRAVINGS ON GENUINE FED OR ZORKI CAMERAS.

Created in the apartment of a skillful and imaginative counterfeiter in Moscow, among other places (95), these fakes are interesting for no reason other than the small number in existence. Created from FED or Zorki cameras of all sorts of original models, these cameras, which are becoming sought after, will be rare and desirable someday - why not, after all ...?

The numerous variants are impossible to compile and describe in detail here in only two pages, but they can be categorized into a few "families."

- Fake engravings relating to the Soviet Union: Stalin or Stalin's Man, NKVD, KGB or GPU, Pioneer, FED-ZORKI from Kharkov, FED "ARSENAL", ZORKI YURA, etc.
- Fake engravings relating to the Third Reich about which I refuse to give any more details. They are revolting to me...
- Cameras painted in various colors, khaki, camouflage, or covered in various finish materials, most of the time perfectly done. (52)
- Personalized cameras (on order), a recent variation which seems to be taking over a sector of the market. (e.g. AURORA 1917-1997 For A. Kasuya by A. Kamynin cameras works). (92)

## FED I "LEFT HANDED SPECIAL"

The inverted Leica has been the dream of every left-hander in the world.

What Leitz never constructed has been done by a talented Moscow counterfeiter. All the "guts" of the camera are mirror images of the original, even the screw threads of the focusing helicoid. It's an incredible piece of work and one which really ennobles the notion of the "fake" Leica.

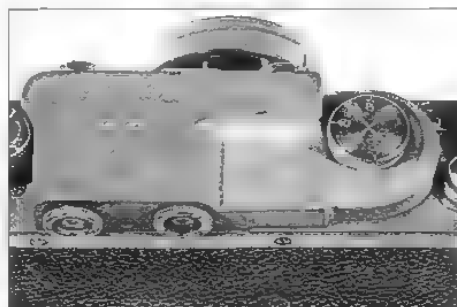
Because the camera works, naturally!! All we can say is Bravo!!

Variant: black lacquer model. Once again, Bravo !

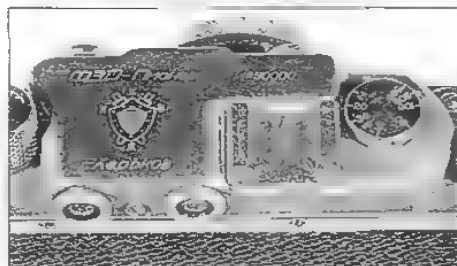
## GIANT DISPLAY WINDOW LEICA REPLICAS

Several "replicas" of gigantic display Leica's have shown up on the market. Superbly done, they find room quite comfortably in display cabinets in the salons of well-heeled amateur collectors.

**FAKE LEICA'S and FAKE-GENUINE FED'S "Made in BELGIUM"** It's not enough to have just Russian and Polish counterfeiters - a Belgian "artist" is also in the business of transforming FED and Zorki cameras. While his work is admirably well done, we will not dwell on it in these pages.



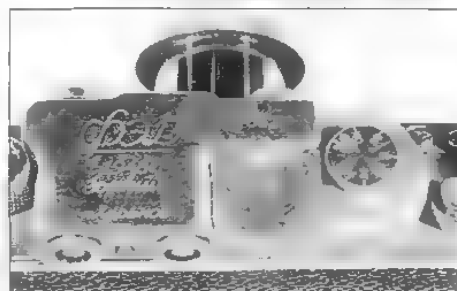
Fake engraving FED-LEICA "Kharkov" (le "M" is backwards.)



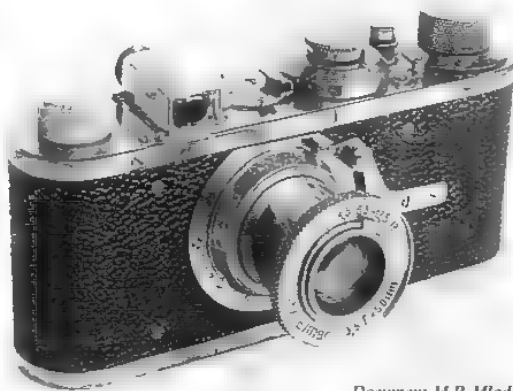
Fake engraving FED-Pioneer # 50,000 with NKVD shield !!



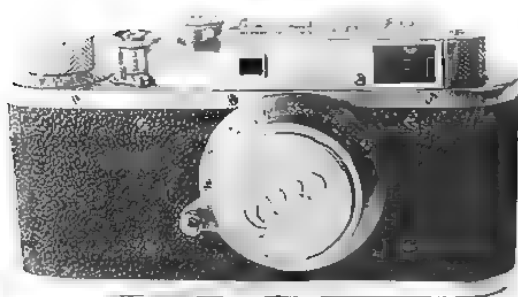
Fake engraving "FED-M.I.K." from 1943



Fake engraving "FED-ZORKI" made in Kharkov ....



Document M.P. Mladek



Two prototypes of FED-2  
Document FED - Kharkov



Beginning in 1950, with the entire apparatus well broken in, production of FED cameras is on the march.

The prewar FED prototype has not been forgotten and under the stimulating influence of the Moscow "competitor" the Ukrainian engineers again want, following the path of the FED-2 (p. 98), to escape from the rut of the "original model." Two prototypes are proposed: one of them will become the FED-2, while the other test bed, abandoned, greatly resembled the ... Zorki-2 prototype (see p. 130.)

## FED-2 Prototype 1 c.1950

N° 000000

**F100**

On an unchanged body, the idea of an integrated rangefinder/viewfinder as seen in the 1940 test camera, resurfaces. The same formula is found on the Zorki-3 the following year. The design of the "dished" collar around the release button is picked up on the FED 1g. (p.97)

## FED-2 Prototype 2 c.1950

N° 000000

**F110**

Conceived by D.M. Krivorotchenko and I.D. Schiffman

A more elaborate body; the chassis and removable back are in cast aluminum alloy.

Larger viewfinder; with integrated rangefinder.

RF base 67mm; square RF window, with no exterior adjustment possible.

Adjustable diopter on the viewfinder (like the Leica IIIfb)

Lower advance and rewind knobs, not very ergonomic but Oh! so elegant. No strap lugs.

## FED-2 Preseries-1 c.1952

A few dozen units produced.

**F111**

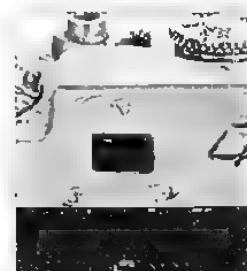
It prefigures the FED-2a, but with square, stamped RF window, as on prototype F110

## FED-2 second Preseries c.1952 - 54

A few hundred units produced. Transitional model.

**F115**

On the models following the FED-2, first preseries (F111) a movable, stamped plate covers the opening in the top plate and acts as protection for the RF window.



FED-2 second preseries. The triangular plate rotates out of place to show the RF window.

Doc. A. Kasuya

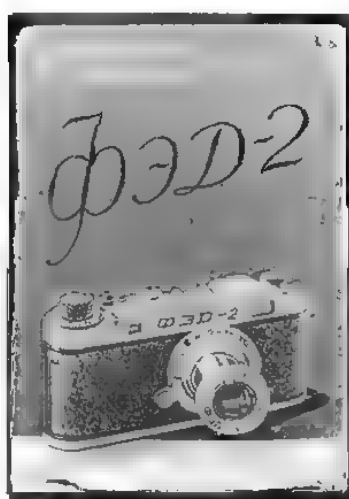
On this model, rangefinder adjustment required the total removal of the upper plate.

On the FED-2 second preseries (F115), adjustment of the RF is made considerably easier thanks to the removable plate.

This solution - incorporating a little plate which allows RF adjustment from the exterior - is technically and economically attractive, and is adopted for the FED-2a.

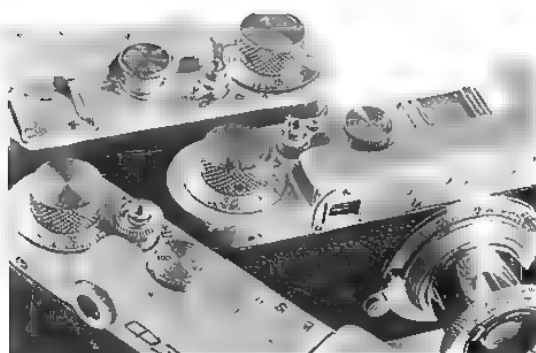
The Zorki-3, also featuring a RF window integrated into the top plate, also keeps this option. Rewind clutch operated by lever.

Weight of the FED-1: 520g, of the FED-2: 595g.



Rare instruction book for the original FED 2 (F111)

Doc. A. Kasuya



Superb gathering of three variants of the FED-2, photographed by A. Kasuya.

## **FED-2 type-a 1955 - 1956**

**F120**

**Fewer than 200,000 units produced**

Mass produced model, identical to the pre-series FED-2, but with round rangefinder window, adjustable from the exterior.

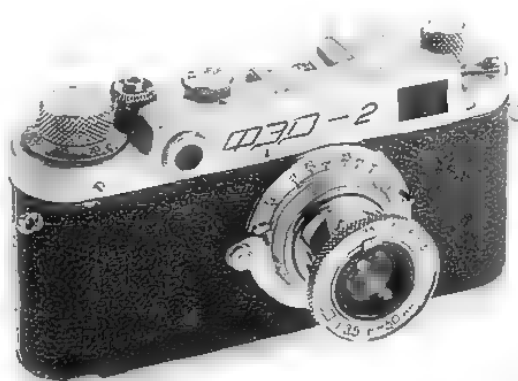
Green tinted viewfinder, with pink-orange rangefinder spot.

top plate engraving identical to that of FED-1f

Speeds: B; 1/25s. - 1/500s. Ring-type rewind clutch release around the shutter. Body serial number taken from a new series, engraved on rear of top plate. Strap lugs.

Two back locking tabs (Contax-type).

3.5/50mm coated lens, identical to that of FED-1g with revised infinity lock.



**F120 - FED-2 type-a.**

## **FED-2 type-b 1956 -1958**

**F130**

Identical to FED-2a, but with flash sync

Shutter speed selection before or after cocking.

Equipped with new rigid Industar-26m 2.8/52.4mm lens with focusing lever

**Variants:**

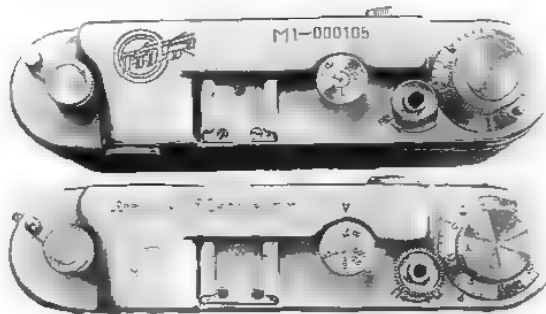
F130 - 1st series Fed-2b: sync on the body.

F131 - 2nd series Fed-2b: sync on front of top plate.

F135 - Body covering in green, red, or blue lacquer paint.

F136 - FED from the '50's with engravings from 1998-99 (92).<sup>(92)</sup>

- Chinese copies: CHANG CHIANG and NANJING-M1 (28).<sup>(428)</sup>



**Nanjing M1 (Chinese) (c. 1959) and FED-2a.**  
*Document Douglas St Denny.*

## **FED-2 type-c 1958 - c.1960**

**F140**

Identical to 2b but with new style advance knob with film-speed memo.

Initially delivered with the FED Industar-26m 2.8/52mm lens with heavily knurled focusing ring instead of a lever. (see illustration F150).

**Variants :**

F141- Body without strap lugs.

F142- Engraved "Made in USSR" around speed selector knob (Export)

F143- Engraved FED-2 in Roman and Cyrillic letters, as on F160

- on models 2c and 2d, body finished in colored lacquer: brown, red, beige, dark blue, grey, or green.

- self-timer in either high or low position.



**F140 - FED-2 type-c equipped with lens F400**

## **FED-2 type-d 1958 - 1963**

**F150**

Identical to Fed-2c but with new, standardized speed sequence :

B; 1/30s. - 1/500s.

1962: introduction of a mechanism preventing release of partially cocked shutter.

- Variants identical to those of FED-2c (F151-152-153)



**F150 - FED-2 type-d equipped with lens F410.**

## **FED-2 L (factory designation) 1963 - 1969**

**F155**

Identical to FED 2-d but delivered with the new INDUSTAR-61 lens, with Lanthanum elements.

**Optical calculations done by V. S. Tsemekhman et Z. I. Zaitseva.**

A few, rare bodies are engraved FED-2 L on the body front panel.



*Including all the FED-2 subtypes (a, b, c, d, L and e) nearly two million bodies are delivered in 16 years.  
Then, in the following two decades, more than two million FED-3 are made.*



**F170 - FED-3 type-a**



**F180 - FED-3 type-b**



**F160 - FED-3 type-e**



**F190 - FED-4 type-a**

### **FED-3 type-a 1961 - 1963**

**F170**

New model, with technical specifications based on those of the FED-2. Shorter rangefinder base to leave room for the slow speed shutter mechanism. Speeds: B; 1s - 1/500s.

Delivered with Industar-26m 2.8/52mm lens with large knurling.

**Variants:**

F170 - Shutter speeds around the base of the selector knob

F171 - Shutter speeds engraved on the selector knob.

- FED-3 engraving in Cyrillic characters on front of camera, or FED logo with both Roman and Cyrillic letters.

### **FED-3 L 1963 - 1969**

**F175**

Identical to FED-3a, delivered with the FED-Industar-61 Lanthanum lens.

### **FED-3 type-b 1963 - 1972**

**F180**

Derivation of the Fed-3a, with lever wind on a redesigned top plate.

Delivered with Industar-61 2.8/52mm Lanthanum.

**Variants: 1970 - 1976**

Introduction of a new mechanism preventing release of partially cocked shutter.

F181 - REVUE 3 (Foto-Quelle c. 1971- sold with Jupiter-8 KMZ lens)

F182 - 50 years of October (50th anniversary of the 1917 Revolution).

- models 3-a and 3-b can also be found in green, red, and blue finish.

### **FED-3 L/D 1977 - 1980...**

**F185**

Delivered with Industar-61L/D 2.8/52.4mm lens

**Variant:** F186 - Version with "Olympic Games" marks.

### **FED-2 type-e 1969 - 1970**

**F160**

**Conceived by R.M. Belenki and N.N. Pilipenko.**

Economy version of the Fed-3b, of which it takes the castings and the specifications, but incorporates the shutter mechanism of the Fed-2d. No strap lugs.

The last of the FED-2 models. The 2e is delivered with the FED-Industar-61 lens.

Quite uncommon.

**Variants:**

F161 - Name engraved on the top of the body rather than the front.

### **FED-4 type-a 1964 - 1971 (229,566 units prod.)**

**F190**

**Conceived by R.M. Belenki.**

Integration of a selenium meter on the body of a FED-3a.

The metering mechanism is enclosed in a higher top panel.

The rewind knob is integrated into the side of the panel.

Delivered with the FED-Industar-61 lens with Lanthanum elements.

### **FED-7 c1969 (only a few units)**

**F200**

Prototype of the FED-5B, based on the FED-3b. Squared-off body

Back opens on hinges, with rewind crank located under the body.

Japanese inspired design.

(see catalogue of the Leica Shop/ Wien, 1999 p.42. Illustrated on the next page).

*In 50 years, the production of rangefinder FED cameras,  
either copied or derived from the Leica, totals more than 5.5 million ...*

**FED-4 type-b 1969-1976 (269,008 units prod.) F192**

Rebodied version of the FED-4a based on smaller meter components, and featuring a new shutter and winding mechanism from the FED-3b. As on the 3b, the strap lugs have been left off.

Serial number embossed first on the back, later on the base of the camera.

*Variants:*

F193 - factory designation: **FED-L/D**, a FED-4b delivered with the I-61L/D lens.

The FED-4b exists with several versions of the name in Cyrillic characters and, having been widely exported, has several distributors' labels as well:

F194 - REVUE (Foto-Quelle - 1971),

F195 - TAXAL (USA),<sup>(56)</sup>

In addition to commemorative Soviet markings:

F197 - "50th Anniversary of October".



**F192 - FED-4 type-b**

**FED-5 B 1975 - c.1990... (1975 - 80 : 226,343 units) F211**

Conceived by V.V. Gebrakov.

**Prototypes in 1975. Series production in 1977**

Development of the FED-3b (without meter): new winding lever; rewind crank. Accessory shoe screwed on top of top plate, rather than in a depression.

Hot-shoe contact in accessory shoe. Eyepiece with diopter adjustment

Delivered with FED-Industar-61L/D 2.8/53mm lens.

*Variants:*

F211 - Moscow Olympic Games (1980).

There are several variations of the logo: (212-213-214-215, likewise FED-5 below.)



**F211 - FED-5B**

**FED-5 1977 - c.1990... (1977 - 80 : 13,214 units) F220**

**Series production from 1978. (more than 650,000 units.)**

Development of the FED-4b, but with specifications of the FED-5B.

Retractable rewind knob.

*Variants:*

F221 - Moscow Olympic Games (1980).

F222 - Logo in black Cyrillic characters.

F223 - Logo in black Roman letters.

F224 - Logo in white Cyrillic characters.

F225 - Logo in white Roman letters.



**F224 - FED-5**

**FED-5 C 1977 - c1990... (1977 to 1980 : 333 units) F230**

**Series production from 1983. (225,000 units made from 1981- 90)**

Economy model of the FED-5, without diopter adjustment, but with bright-line finder. (On the Soviet domestic market version, the take-up spool is not interchangeable).

Delivered with FED-Industar-61L/D 2.8/53mm lens.

*Variants:* same as FED-5

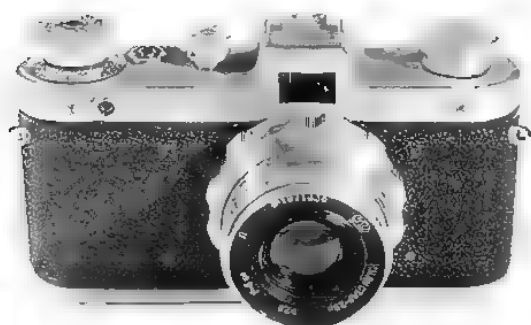
F231 - Moscow Olympic Games (1980). Variations of the logo: (232-233-234-235). Benchmark: #034675 dates from 06 March, 1990



**F200- FED-7 # 6900001 -- Doc. Leica Shop - Wien**

**FED-6 TTL c 1992 ... Based on the FED-5B with a "modern look" and CdS meter "TTL". Check it out on the web. (134)**

Economy version of the FED-2, the Zaria was only for the domestic market. As such, it was unknown for a long time in the West.



**F240 - ZARIA prototype** - Document FED Kharkov

**ZARIA Prototype c.1958 "DAWN" F240**  
Identical specifications to those of FED-2d, but without rangefinder Galilean finder located on lens axis.  
Focal plane shutter; speeds B; 1/30s. - 1/500s.; flash sync.  
Delivered with FED-Industar-26M 2.8/5cm lens



**F242 ZARIA de série.** Document M.Masson

**ZARIA 1959 - 1961 (141,228 units.) F242**  
Production model.  
Identical to the prototype but engraved ZARIA on top plate above finder.  
The FED, along with the ZARIA was subjected to scathing criticism by the Soviet specialized press.  
This may have resulted in the short production run.

**Variants:**  
F243 - more squared-off viewer window  
F244 - covering in dark blue, like the FED-2c  
F245 - Zaria body and KMZ lenses finished in olive drab (like the Leica R3 Safari), resulting in a very attractive outfit. A fake, of course (seen at the Bièvres photo fair). (20)



**ZARIA-3 prototype** Document FED Kharkov

**ZARIA-3 c1960 F245**  
**Prototype # 000002**  
Fewer than 100 units made  
Despite this, the ZARIA-3 was indeed placed on the market  
Documents examined at the FED plant make us think that 60 cameras were sold.



The ZARIA-3 has the same specifications as the original, but includes under the top plate an optical lightmeter.  
A second viewer lets the user see a grey scale lit by ambient light  
Under the rewind knob, rotating the coupled diaphragm ring turns the grey scale and shows the correct speed when the two coincide.  
Camera #000002 is equipped with a prototype of the FED-Industar-26M 2.8/5cm in a simplified mount, with the focusing ring moved to the front of the lens.

1988  
FED  
STEREO

### *FED factory becomes FED production unit*

TSVVS

September 1946: Return to Kharkov

3LD

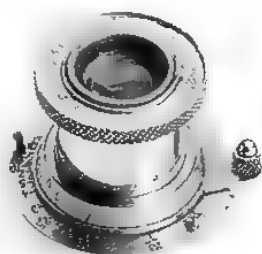
5 B

5  
5C

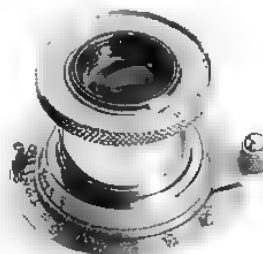
# 39MM SCREWMOUNT FED LENSES



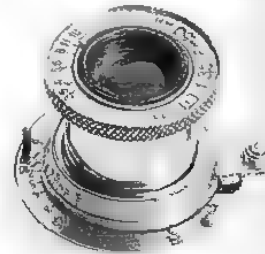
**F250 - FED Industar-10 3.5/50 mm**  
lens # 5921 on FED -1a # 5941  
Anastigmat optical copy of the Tessar, in a copy of the Leitz Elmar mount.  
Front element level with lens face with spanner notches.  
Diaphragm calibrated f3.5 - 18  
Flat brass ring holding rear element (the knurling on ins ring and on focusing lever  
The screw blocking the helicoid thread is generally of large diameter.



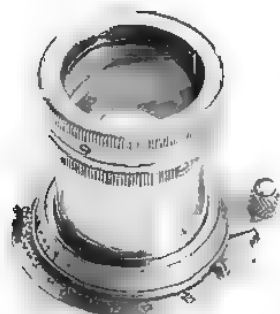
**F260 - FED 1-10 3.5/50 mm**  
on FED-1a, 1b, 1c, 1d (1935-36 - 1946)  
Front element protruding beyond lens face.  
No spanner notches. Rear element held by black ring with engraved concentric anti-reflection rings  
Coarser knurling.  
Smaller blocking screw  
Variants:  
several positions for the focusing lever: 7, 9, 10, 11 o'clock.  
-F265 - with extended helical focusing  
-F267 - engraved "Leitz Elmar."



**F270 - FED 1-10 3.5/50 mm**  
#9124 on FED R.F then on 11 -1948  
(see p.96-97, First coated lens. Identical to F260, but with new, standardized diaphragm scale - f3.5 - 16.  
on models 1f, 1g from 1949-55  
better overall finish.  
Variants:  
-F275 - with extended helical focusing  
Several lenses supplied to China for the DALAI (26)  
- Copies: 3.5/50mm for the SHANGHAI-58 (1958 - 1963) (21-28)



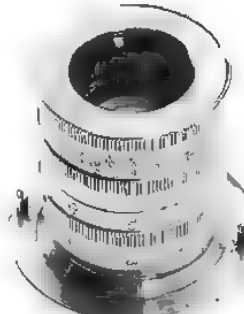
**F280 - FED 1-10 3.5/50 mm**  
#156837 on FED 2-a #021922.  
Identical to F270, but with serial number engraved on the conical surface of lens mount. Redesigned focusing lever.  
Infinity block by pressure instead of by spring and button.  
Variant:  
**F285 - FED 1-10 3.5/50 mm**  
Corrected version for the FED "Taurus" FT  
illustration below.



**F300 - FED 2/50 mm**  
#28912 on FED 3 #59309 (c.1938)  
6 elements.  
Diaphragm from f 2 to f 18.  
Variants:  
F305 - engraved "SUMMAR" Leitz.



**F330 - FED 3.5/50 mm "MACRO"**  
(Moscow Polytechnic Museum)  
macro lens.  
minimum focus: 20cm. (not RF coupled).



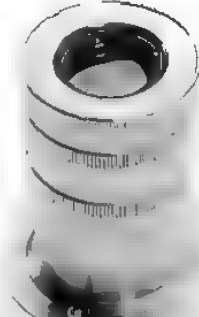
**F340 - FED 3.5/50mm "MACRO"**  
Variant of model F330.  
engraving on the lens face. (uncoupled).



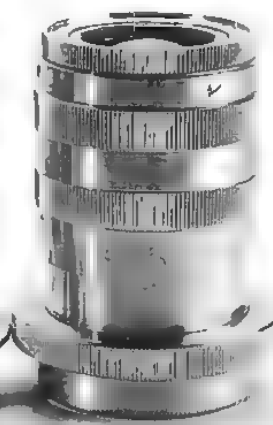
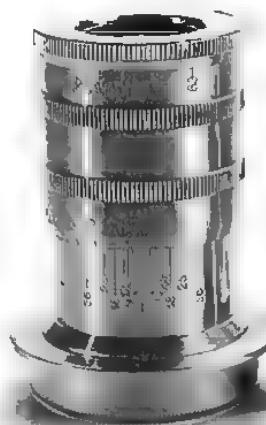
**F320 - FED 4.5/28mm (1938-39)**  
6 element anastigmat diaphragm: 4.5 - 18  
very few produced.  
a finder planned for 1939, is also produced in very small quantities.  
Variant: engraved "Leitz Hektor" on the face; "Made in Germany" on the interior



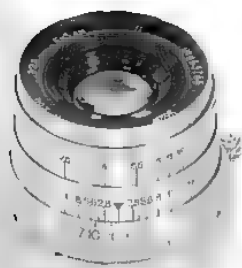
**F360 - FED 5.9/100 mm c.1937-38**  
Prototype of the 100mm FED.  
Only a few dozen units produced.  
Announced in Sovetskoe Foto with the 2/50 and 4.5/28mm.  
RF coupled  
Telephoto opening to f5.9, but recommended in use from f6.3 only  
focusing from 1m - ∞



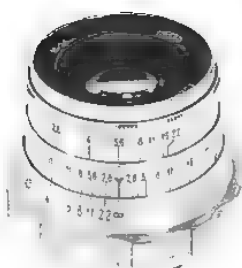
**F370 - FED 6.3/100mm**  
c. 1938 Skinny version of F360.  
Fewer than 20,000 units made.  
RF coupled.  
delivered with its finder.  
Variant:  
F375 - engraved Leitz "TELYT" 6.3; 10cm (S)



FED 6.3 (F370) and FED 5.9/100mm (F360)  
Photo: P.Bobavsky



**F400 - FED Industar-26m 2.8/50mm on FED-2b (c1955)**  
Derived from the Industar-50 (4 elements) in the aluminum barrel of the Jupiter-8 exact focal length 52.4mm.  
**Variants :**  
Copies of the 2.8, 50mm for CHANG-CHIANG and NANJING M1 (30)(22)



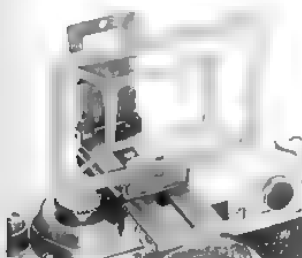
**F410 - FED I-26m 2.8/50mm on FED-2type-d and ZARYA**  
Identical to F400, without focusing lever, replaced by a large textured ring.  
  
this becomes, with variants F270 and F280, the standard lens for the FED



**F421 - FED Industar-61 2.8/52mm on FED-2L, 2-e, 3-b, 4-b (c1963)**  
**New optical formula and lanthanum glass elements.**  
Exact foca. length: 52.4mm **Variants :**  
F420 - satin aluminum finish  
F421 - two-tone finish  
F422 - engraved Industar-61  
F423 - marked with 53 mm focal length



**F430 - FED Ind-61 L/D 2.8/53mm on FED-3L/D- 4- 5V- 5- 5S (c.1977)**  
Identical to F400 but marked to indicate the presence of Lanthanum glass elements. Black lacquer finish.



**F450 - Sport finder FED c1938**  
Rude copy of the Leitz "Rasuk" finder of 933.

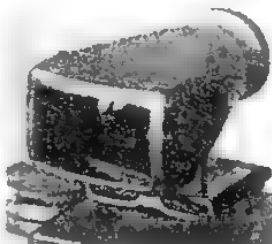


**F460 - FED - Finder 100mm c1938**

**F455 - right angle finder 90° c1938**  
Copy of the Leitz "Wintu" finder of 1933.

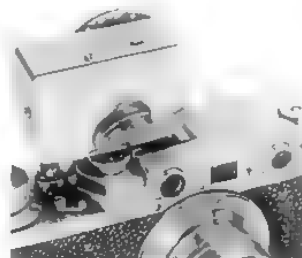
**F465 - FED - 28mm Optical finder c1939**

This illustration of the 28mm finder is taken from an article about FED new Developments in "Sovetskoye Foto" and shows the finder on a FED-2 prototype (see p. 98)



**F470 - FED - Selenium lightmeter in bakelite**

**F475 - FED - Selenium lightmeter in chromed brass or aluminum.**



**F480 - FED - Self timer**  
the convex mirror on the front allows the photographer to check that he is in the correct position to photograph himself



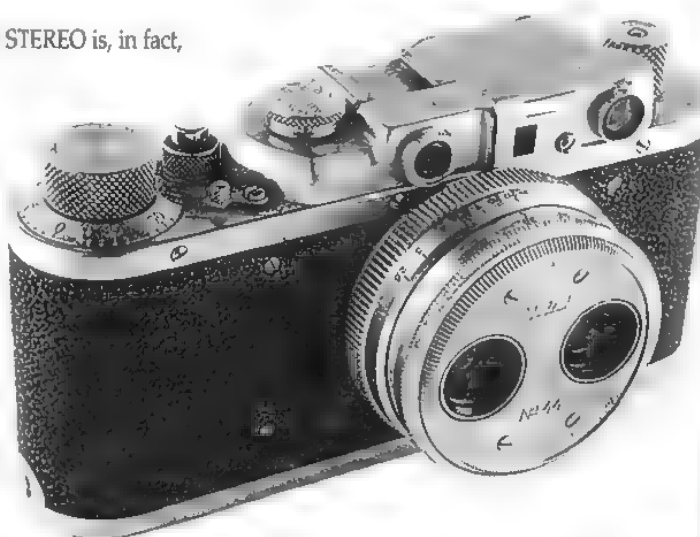
**F485 - FED - Table clamp**

## FED STEREO LENS 3.8/38mm

**F490**

Lens # 44. ( # 210 is the highest number known).  
Often described as a copy of the Leitz Stemar, the FED STEREO is, in fact, the product of a clever counterfeiter.  
The 3.8/38mm lenses come from a popular camera like the Smena. A moveable reducing mask is screwed on the front of the finder window.  
Total production around 50 units.

Incorrectly dated from 1948, a period when FED was already struggling to produce the basic lenses in a factory under reconstruction.  
The outfit is in any case incomplete, since there are no prism adapters to widen the inter-lens base.  
This lens, like certain other "Fake FED-Leica" cameras, will become a rare collector's piece some day.



Document P Bobinski



FED 10 - Document M. Masson

During the sixties, following the trend of popular Western cameras with central shutters (see also p. 152), FED introduces the FED 10, then the 11. Although rather well made, they will nevertheless fall victim to shutter troubles, endemic with this kind of camera.

## **FED-10 1964 - 1967 (23,911 units) F501**

**Conceived by I.D. Schiffman**

Full frame semi automatic coupled rangefinder 35mm.

Lever wind. Selenium meter (11 - 700 GOST).

Central shutter. Speeds: B; 1s. - 1/250s MX sync.

Industar-61 2.8/50mm lens.

**Variants :**

F500 - with strap lugs

F501 - without strap lugs or self timer.

F502 - without strap lugs but with self timer.



FED 11 ATLAS Document M. Masson

## **FED-11 ATLAS "ATLAS" 1967-1971**

**F510**

**Conceived by : L.I. Kogan**

Full frame semi automatic 35mm with coupled, combined RF/VF. Very similar to the FED-10

Selenium meter readouts on top plate and in viewer.

Central shutter behind the lens.

Interchangeable Industar I-61 lens with bayonet mount, but no other lenses available to our knowledge.

No strap lugs

**Variants :**

F510 - 1st series: 1966 - 1967: 1296 units produced (with self timer)

F511 - Production: 1967 - 1971: 21,509 units produced (without self timer)

(149)

On page 76 of the first edition of "Made in USSR" we presented a reflex camera as being possibly from FED.

This full frame SLR (actually a 24x32mm format camera) was illustrated in two articles: one in the USSR in *Sovetskoye Foto* and the other in France in the August, 1961 issue of *Science et Vie* (Science and Life), under the heading of "New Soviet Technical Developments."

In the current edition this camera is included under GOMZ LOMO (p.69) as it is probably not the still-mysterious reflex camera described in the original FED documents, wherein it is written that in 1974, the FED plant in Kharkov had perfected a semi-automatic SLR, the FED-S. This camera offered speeds of B; 1s. - 1/500s. using a shutter of FED's own conception. The lens was an Industar-61 2.8/52mm with automatic diaphragm.

There are likely no further details, but it is impossible to pass this "almost camera" under the cloak of silence, since it leads us to believe that the Kharkov factory was not satisfied just copying OP (Other People's.) cameras.



# FED MICRON

# ФЭД МИКРОН

## **FED MICRON Prototype c.1967** **F520**

**Conceived by E. Z. Maron** (57)

A FED MICRON prototype without visible engravings, is displayed in the Moscow Polytechnic Museum.

Half frame automatic 35mm camera with a single program curve, using a combined diaphragm/lens speed mechanism:

When the shutter release is pressed, the shutter blades open to the preselected diaphragm. The speed is then automatically set in the range:

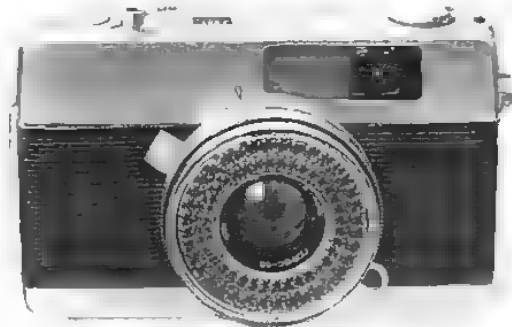
B; 1/30-1/800s. Sync.

On-axis Newtonian viewer.

HELIOS 89 1.9/30mm lens.

Delivered with a neck strap.

*This may be the camera known as the "Manager" announced in the Soviet press in 1962-63.*



**FED MICRON** Document Musée Polytechnique - Moscou

## **FED MICRON Preseries c.1968** **F521**

**# 6804716**

Limited series produced the first year

Identical to the prototype but with Cyrillic engraving MICRON on the camera front and FED on the top plate.

Lug for carrying strap.

**Variant:**

F522 - MICRON silkscreened on the front in Cyrillic characters.

(Press presentation Model - May, 1968 issue of Photo-Revue)



**F521 - FED MICRON** Document Jacques Daniel

## **FED MICRON 1968-1986** (120,796 ex.) **F530**

Series production model

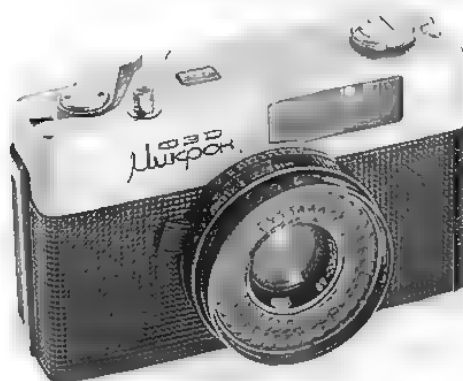
Specifications identical to the preseries cameras, but with redesigned body.

The back is now removable, not hinged

Lug for carrying strap.

**Variant:**

F532 - MICRON with "Moscow Olympic Games" silkscreened on the front.



**FED MICRON de série** Document Jacques Daniel

## **FED MICRON 2 1978-1987** (34,946 units produced.) **F540**

**Conceived by V.M. Bakovitski**

Although with the same dimensions as the MICRON, the MICRON 2 uses full frame, and gets a rangefinder as well.

CdS meter in the lens barrel.

Meter needle visible in the viewer.

Automatic features and shutter speed/diaphragm combination identical to those of the Micron.

Speeds: B; 1/30s. - 1/650s. manual speed of 1/30s. Sync

Industar-81 2.8/38mm lens.

Dimensions: 112x77x59mm.



**F540 - FED MICRON-2** Document FM Maxson



F550 - FED 35 Document FED



F560 - FED 35A Document FED



F570 - FED 50 AUTOMAT Document Vukla Osvetler

The FED-35 was presented as the premier attraction for the 50th anniversary of the FED concern: 1934 - 1984. (see also the Elektra, p. 66.)

**FED-35** Late 1984 - early 1987 (6.870 units.) **F550**  
Conceived by Chapoal, Baranovski, Martova and Samofalova.

Full frame 24x36, with combined RF/VF centered on optical axis, featuring program, automatic, semi-auto modes with override.

Specifications of the MICRON-2, but with redesigned body finished in black lacquer, and different shutter speed range: 1/60s. - 1/300s. in automatic mode; B; 1/4s. - 1/125s. in semi-auto or manual modes. Industar-81 2.8/38mm lens.

**FED-35A** 1987-1990 (24.300 units.) **F560**  
Conceived by Baranovski.

Identical to the FED-35, but with only full auto and manual modes. 1/60s - 1/300s. in automatic mode  
B; 1/4s. - 1/125s. in manual mode.

**FED-50 AUTOMAT** 1986-1990... (86,000 units produced) **F570**  
Conceived by Gontcharov, Pilipenko, Ratner.

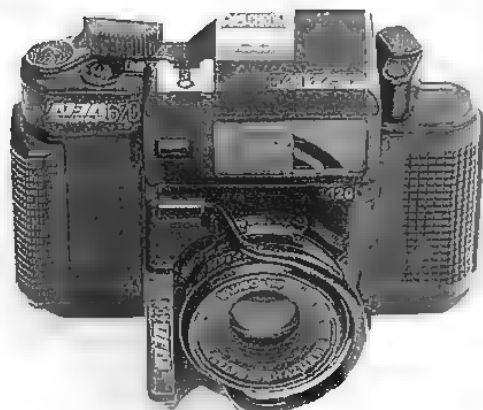
full frame automatic 35mm 24x36 with on-axis viewer.  
Successor to the FED-Micron and FED-35, the FED-50 reappear with a selenium meter around the lens.  
Lens/shutter as on the FED Micron.  
1/30 at f:2.8 - 1/650s. at f:14 in automatic mode.  
1/30s. from f:2.8 - 16 in manual; Sync.  
B only with f:2.8 (shutter-diaphragm).  
FED-50 in gilded letters.  
strap lugs.

## A 6x7 FED we have been waiting for...

A snippet, an rumor, a whisper... announcing the imminent appearance of a FED medium format camera in 6x7cm format, with rangefinder and interchangeable lenses, came to us in 1994. Moreover, in the 1994 Photokina display of "OPTIK HAUS" with, in separate display cases the Belarus, Russian, and Ukrainian products were gathered, there was no great FED novelty present. Only the FED-5 range, and the FED STEREO represented the company. The same thing happened at subsequent Photokina, and it was at Bièvres - the summit meeting of unexpected discoveries - that this injection-molded plastic model appeared before our greedy eyes. (196)

### LATE-BREAKING NEWS:

As if to complicate matters further, Peter Coeln's Leica Shop Wien catalog for displays the actual Prototype, sporting a RF-coupled Industar 11 5,6/65mm "interchangeable" (!) lens. To be continued...



Document M. Czerwinski

Creating a manufactured object in a sector where the competition does not want to get involved, is called developing a commercial niche. (see also the KMZ HORIZON.)

FED applies this principle adroitly by proposing, starting in 1988, a complete kit consisting of: a stereo camera, a stereo projector, the screen, the special polarizing glasses, and the equipment for mounting the slides. This outfit is designed to conquer a market where nobody else is, or rather where no one is anymore:

Stereo photography.

The camera works fine, but its simplistic automatic features leaves the true believers a bit dissatisfied.



**FED STEREO**, a very successful Leica M "family resemblance".

*Doc. M. Capière*

## **FED STEREO 1988 ...**

**1998**

**F580**

**Conceived by Gontcharov, Martova, Galkine, Samofalova, Melnik.**

35mm stereo camera for 24x30mm format pairs, with CdS meter.

Central viewer with parallax correction.

Matched shutter/diaphragm units (see MICRON.)

Automatic with override:

1/30 at f:2.8 - 1/650s. at f:14 in automatic mode.

1/30s. from f:2.8 - 16 in manual.; Sync.

B only with f:2.8 (shutter-diaphragm).

matched Industar-81 2.8/38mm lenses, with 63.4mm separation.

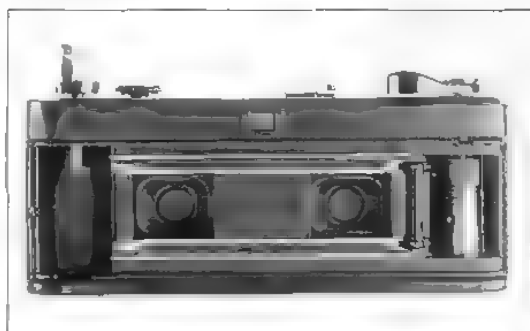
Delivered with 2 sunshades, carrying bag, strap, lens caps, battery.

Variants:

F581 - FED STEREO "PERESTROIKA" c. 1990

F582 - FED BOY (still available in 1998. Germany)

F583 - FED STEREO M, chrome finish.



**View of the film gates of the FED STEREO.**

This camera has become a standard in its field for stereo lovers.

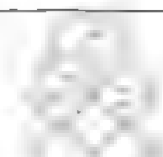
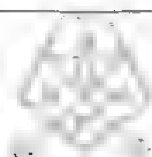
Reproduction of a brochure from TENTO, (the distributor) for the FED STEREO outfit, comprising the camera, a stereo projector, two pairs of polarizing glasses, a lenticular metallic projection screen, cases for everything and a set of slide mounts.

*Doc. FED c1990*

In the January and September, 2000 issue (L49+L54) of the bulletin of the Russian Camera Collectors Club, David Tomlinson revealed that the Ukrainian enterprises FED seemed to have ceased all production of photographic cameras and equipment, selling only the FED-5, 5B, and 5C left in stock.

We regret the disappearance of this giant of the opto-mechanical industry. Anecdotes about "FED" will one day comprise part of the Great History of Humanity.





3073

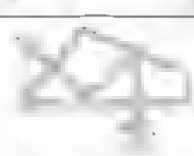
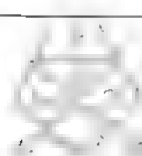


ФАГ



МИНИАТЮРНЫЕ, ВОЕННЫЕ

И ДРУГИЕ ВОЕННЫЕ КАМЕРЫ



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# ZAVOD GEODEZIYA

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Завод ГЕОДЕЗИЯ	116	Zavod GEODESIYA
СТЕПАНОВ	116	Trichrome Stepanov' camera
ФАГ	117	FAG
ФАГ 1	117	FAG type 1
ФАГ 2	117	FAG type 2
ФАГ 3	117	FAG type 3

What notion, around 1933, could have induced the firm Geodeziya of Moscow, member of the VOOMP group (Federation of Opto Mechanical Industries) to make, and hope to produce, a Leica camera copy?

Probably the simple desire to possess one of these already mythical but totally inaccessible German cameras that had been introduced in a report in the May, 1927 issue of Sovetskoye Foto and praised by the highly celebrated and very "official" Moscow photographer, Alexander RODCHENKO.

Zavod GEODEZIYA had a good reputation at that time, producing surveying instruments, microscopes, and many other precision optico-mechanical instruments.

At the same time, the FED factory in Kharkov and the experimental lab of VOOMP in Leningrad were working on the same projects. (see p. 36 and p. 88 )

In issue #7 of SOFO production of the Pioneer, that is, the "VOOMP" is reported to have stopped in Leningrad since June, and that the camera is supposedly being made in Moscow by the GEODEZIYA factory. Series production of the FED begins at the same time in Kharkov.

Could this be competition, politically orchestrated at the highest levels, or the first geographical rapprochement of a "technology" nearer the Stalin's absolute power.

We have no idea for the time being.

In Moscow, 50 units of an unnamed camera are delivered in early 1934 and "distributed" to some Russian photo-reporters for "trials."

300 cameras are projected for the end of the year...

1500 for the following year.

Nice program. In fact, only a hundred or so cameras are delivered, with several variations.

The lenses, fixed on the first cameras (22) and interchangeable on the rest, are made by the opticians of the VOOMP factory in Leningrad, just like those of the "VOOMP", the "GOF", and the first "FED."

However, the 3.5/50mm lenses equipping the FAG, have, in addition to the VOOMP signature, the Z. D GEO-DEZIYA label.

The camera was originally anonymous; a rumor holds that under the initiative Sovetskoe Foto, readers were invited to find "a militant Soviet name for a Soviet camera."

The name FAG, for Foto Apparat Geodeziya was finally chosen. History does not record the "militant" names that were not chosen.

## Stepanov's Trichrome Camera

*In 1939 A. Kazmin and I. Ivanov conceived this camera based on the principles of Kozlovski's camera (see p.19).*

*Their primary achievement was to develop the semi-transparent mirrors to a precision 4 to 6,000 times more accurate than ordinary mirrors, thus largely eliminating ghosting and double images.*

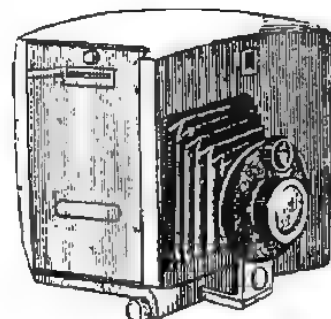
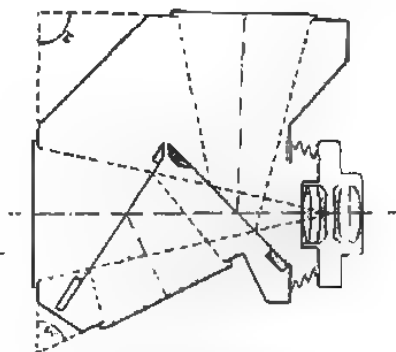
*That same year D. Stepanov conceived and built a trichrome color camera using three 6.5x9cm plates and a 4.5/135mm Ortogoz lens in a GOMZ shutter, just like the one of the FOTOKOR. The body casting is in aluminum alloy, the viewfinder is borrowed from the TOURIST.*

*Its originality resided in the use of 0.01mm thick pellicle mirrors in nitrocellulose.*

*The gelatin filters were held in special holders.*

*The camera was to be produced by the GEODEZIYA factory.*

*We are aware that an example of the Stepanov camera graced the superb display windows of Peter Coeln's shop in Vienna*



Document SA-A SIROV

**FAG type-1****FG10**

Coupled RF full frame 35mm. Copy of the Leica II, but simplified. (22 and 23)

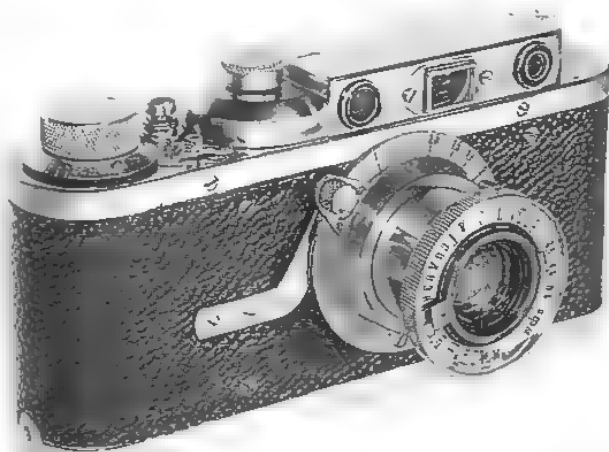
Flat top plate with separate rangefinder and viewfinder located in a housing without engravings or accessory shoe.

Viewfinder window screwed into top plate.

Focal plane shutter. speeds: B; 1s - 1/500s.

non interchangeable 3.5/50mm VOOMP lens, copy of the Leitz Elmar, and identical to the lens of the Pioneer (see p.24) engraved "Zavod GEODEZIYA".

Infinity stop tab "à la LEICA I".

**FG10 - FAG**

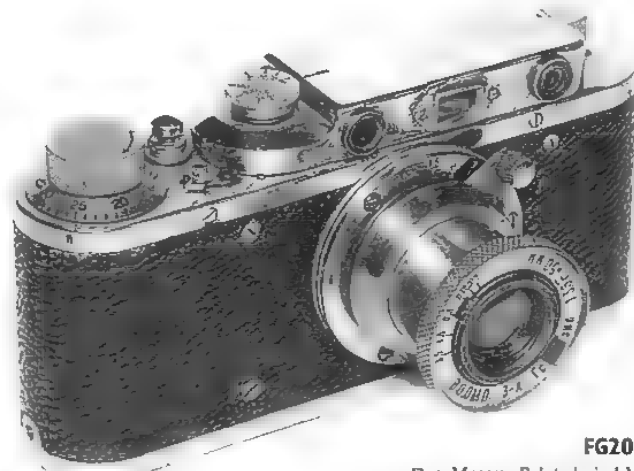
Document Młos Mładek

**FAG type-2****FG20**

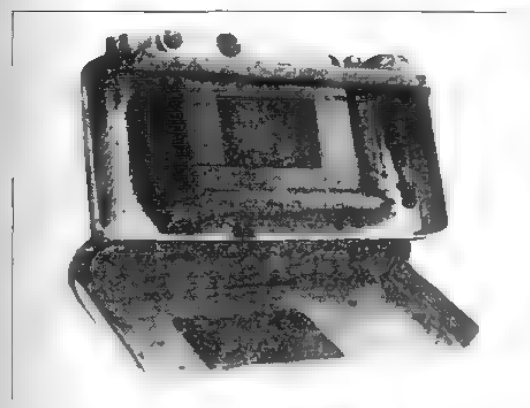
Identical to the FAG type-2, but with interchangeable lens foreseen.

Screw mount attached by three screws.

The Leica-inspired infinity stop tab has disappeared.

**FG20 - FAG**

Doc. Moscow Polytechnical Museum



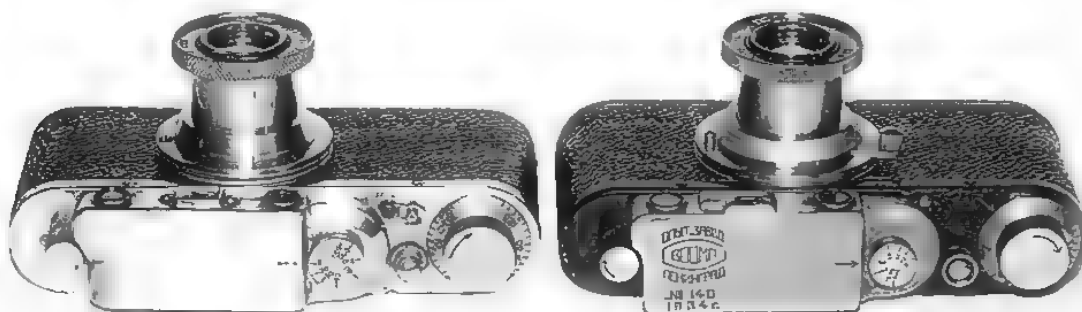
Doc. Sov. Foto #2 de 1935

**FAG type-3****FG30**

Presented in Sovetskoe Foto #2 of 1935, with a removeable back of the Contax type.

The idea is later used in the USSR on the FED-2.

No such camera has appeared to date.

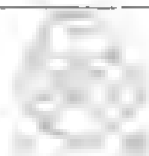
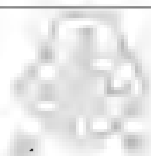


**FAG et VOOMP, two Leica copies .**

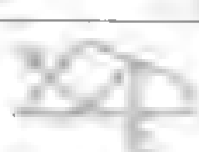
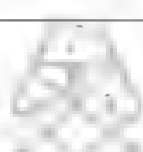
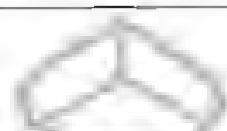
Doc. Moscow Polytechnical Museum



# Справочник по логотипам советских камер 1930-е гг.



Министерство культуры, просвещения  
и других органов культуры



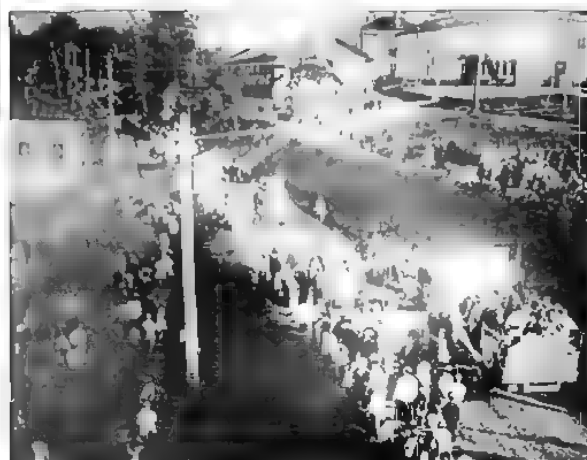
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# KMZ

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ФотоСнайпер ФС-2 КМЗ	172	FotoSniper FS-2 KMZ
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ФотоСнайпер ФС-4, ФС-4 М, ФС-5, ФС-12-3, ФС-122	174	FotoSniper FS-4, FS-4 M, FS-5, FS-12-3, FS-122
НАРЦИСС	175	NARCISS
СТАРТ, СТАРТ-2	176	START, START-2
ФТ-1, ФТ-3, ФТ-2	177	START Turret Lens Mount - Underwater housing for START
ПФА, ПФА-2	178	FT-1, FT-3, FT-2
ГОРИЗОНТ, ГОРИЗОНТ-202	179	PFA - PFA-2
ГОРИЗОНТ 6x15, ГОРИЗОНТ 6x12, ГОРИЗОНТ-205	180	HORIZON, HORIZON-202
МОСКВА-1, 2, 3, 4, 5, ЮНКОР	182	HORIZON 6x15, HORIZON 6x12, HORIZON-205
ИСКРА, ЗЕНИТ-70	184	MOSKVA-1, 2, 3, 4, 5, YOONKOR
ФОТОН	186	ISKRA, ZENIT-70
	187	FOTON



The former enamelware factory in Krasnogorsk is still one of the most renowned military optical complexes in the world.



Workers' manifestation for Mayday, 1941 in Krasnogorsk, only a few weeks before the German invasion. Document KMZ Museum.



Artillery binocular made by KMZ in 1944 during the great patriotic war, purchased in 1985 in China by Douglas St. Denny (28), and then recently offered by the author to the KMZ Museum ...  
"Back in the USSR ..."

February, 1942 is the official date of birth of the KMZ factory. Thus several commemorative cameras were produced at KMZ during the year 1992.

But 1941 is actually the exact startup date of what will become one of the most important manufacturing complexes of optico-mechanical material in the world

By Ministerial decision, the "Optical Products" workshop is created by the restructuring of several former Moscow workshops, along with their engineers and specialized workers.

One of these, E. V. SOLOV'EV (Russian for nightingale) formerly of the EFTE firm, will become in 1959 the head Development Engineer of KMZ and will design the FT-1, FT-3 and Horizon cameras.

A former enamelware factory in KRASNOGORSK (Russian for pretty hill, or red hill,) in the western suburbs of Moscow, becomes the location of the newly formed workshop.

On June 22, 1941, breaking the Russo-German nonaggression treaty, Nazi troops invade the USSR. In a few weeks they are at the gates of Moscow, and the motorcycle brigades of the Wehrmacht, on Volokolamka Avenue, can see the Kremlin through their binoculars. The German army never goes beyond this spot, very near Krasnogorsk.

November, 1941, the battle of Moscow begins.

In the beginning of December, a substantial Soviet counterattack pushes the German Army back by 150 miles. They never regain that territory. (see p. 10)

Starting in the spring of 1941 more than 1300 firms comprising the Russian industrial backbone had been displaced to safety beyond the Ural mountains or to Siberia. The "Optical Products" workshop is evacuated to Sverdlovsk (Ekaterinenburg) past the Urals.

By mid-1942 the German menace no longer weighs heavily on Moscow, and several firms are recalled, among them our optical and mechanical workshop.

It is probably at this moment that the workshop becomes KMZ - Krasnogorskii Mekhanicheskii Zavod - the Krasnogorsk Mechanical Factory - with as its logo a simple trapezoidal prism that the workers are quick to baptize "the tomb."

The military has urgent need for optical material, such as binoculars, rangefinders, spotting scopes, etc. Leningrad is under siege, and neither GOMZ nor GOI can supply the Red Army, and FED in Berdsk is busy making parts for aircraft.

Thus the military orders devolve to KMZ.

Meanwhile the machine tools, the other tooling, and some of the parts evacuated from Kharkov and "lost" along the way, arrived in Sverdlovsk.

Some engineers and highly specialized workers from FED are secretly requisitioned and moved from Berdsk to Sverdlovsk, then later to Krasnogorsk. The bulk of the production is comprised of artillery binoculars, spotting scopes, etc. But in 1943-44 the Red

Army also needs the "Photo-Sniper" which Leningrad, encircled and completely out of stock of raw materials, is no longer in a position to supply.

These are the follow-up models to the FS-2 (see pp. 38-9.)



Photographic gun FS-2 KMZ #1246 with 4.5/30cm lens #1273.

Both elements are engraved with the Red Army symbol: the star and the crossed hammer and sickle, with the KMZ logo underneath.

The reflex housings are almost identical to those of the originals, the bodies are still FED, requisitioned or maybe assembled in Krasnogorsk, but the lens is a TAİR, successor to the GOI-300mm, but with a new optical formula (!).

A few hundred of these are made during 1944.

If we believe the legend, the revised optical formula was "discovered" by D. D. Maksutov while he was relaxing on the shores of Lake Taïr. This lens will inspire numerous "descendants." (p. 171)

May, 1945. The Red Army takes Berlin at the cost of vicious fighting. This brings about the capitulation of Nazi Germany. In the entire zone conquered and occupied by the Soviets, the German factories still standing are completely dismantled and the contents removed to the USSR as "war reparations."

Hundreds of train convoys loaded to bursting with war treasures, are parked in Moscow for several months.

Men, most of the time engineers, are also "delivered" by defeated Germany to the Soviets under the heading of "war reparations." Some Japanese are sent as well to join the Germans.

This period marks the "race for brainpower." Specialists in arms and munitions, especially those working in a field which will soon be known as "Space," along with the optical specialists who had contributed to the renown of Germany in this realm before the war, are actively pursued by Russia as well as the USA.

Some of the material seized from the Zeiss factories is split up. The lenses are sent to Krasnogorsk, where they will become ZK and BK lenses.

Part of the booty assigned to the Army Air Force, is attributed to Kharkov, where the factory uses it on the TSVVS cameras.

The tools and camera bodies are the subject of very high-level negotiations. Some stays in Moscow (for instance the Ikonta bodies.) But by Ministerial decision the Contax and tooling related to them are delivered in compensation to the



Rapid mounting of the FED body on the FS-2. On the front of the housing can be seen the internal protective glass plate.

Ukrainians, and are sent to the ARSENAL factory in Kiev, a munitions factory already equipped with high precision machine tools and staffed by highly reputable and qualified personnel.

We must remember that the Soviet Union in June, 1945, had three seats in the United Nations: Russia, Ukraine, and Belorussia. Stalin undertakes to implant key enterprises which will enhance the importance of the capitals of these republics hoping, geopolitically speaking, to convince the world, especially the western countries of their relatively high degree of autonomy.

Civilian optics is one such infrastructure sector, and the State wants to develop it. Thus we see the establishment of a camera production facility in 1946 at the Arsenal works in Kiev, Ukraine and later, in 1957, the creation of MMZ in Minsk, Belorussia.



1948 first assembly line for the FED-ZORKI at the KMZ works

## KMZ

1946. The KMZ factory is quickly ready to begin production. The enthusiasm of the workers - the men and especially the women - is remarkable.

And the German assistance is invaluable.

The first cameras produced are "MOSKVA-1," actually Zeiss Ikon Nettar and Ikonta's assembled in Krasnogorsk. Shortly afterward come the MOSKVA-2, Soviet Super Ikonta's.

Helped by tooling coming from the FED factory (see p. 82) the KMZ engineers introduce in early 1948 the first FED-KMZ bodies, followed by FED-ZORKI. (In Russian Zorki means "eagle-eyed.")

From the very beginning of production the engineers and assemblers do their best to produce a camera of high quality and perfect presentation, knowing that the Moscow factory already has ambitions for the export market.

In 1949 the concept group consisting of Gavrilov, Denisov and Korolkov perfects a new body shutter release. The true birth of the ZORKI dates from that development.

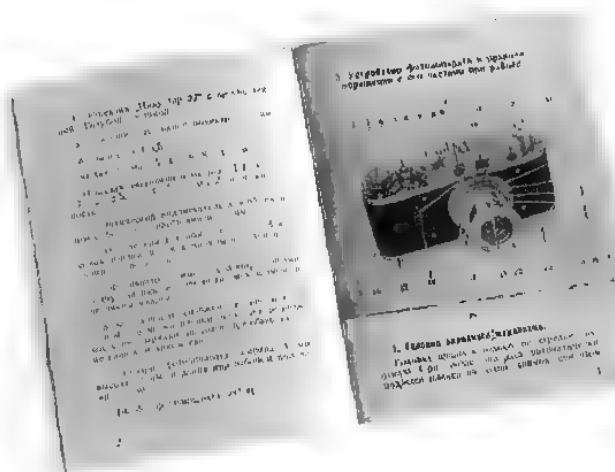
Taking all ZORKI models into consideration, more than 4.5 million bodies and more than 6 million standard lenses - Industar 22 and Industar-50, Jupiter-8 and Jupiter-3 - are produced.

From 1950 to 1960 production intensifies and the range of original Russian lenses replaces those copied from the "Zeiss" originals.

KMZ thus supplies, for lens mounts other than those it produces in house, 39mm screw mount lenses for the GOMZ LENINGRAD, and bayonet mount lenses for the ARSENAL KIEV. Beginning in 1955, ARSENAL produces its own lenses. In 1956 the millionth Industar lens is made.



N. A. GAVRILOV, "Chief designer" of the Zorki. 1946, with P. A. DENISOV, head of the research department, and I. A. KOROLKOV of the "prototype group" responsible for the Moscow and the Zorki. Gavrilov is the man most responsible for the quick startup of production at KMZ.



Instruction book of the 1948 FED-ZORKI.



P. A. DENISOV, head of the research department, and I. A. KOROLKOV of the "prototype group" responsible for the Moskva and the Zorki. *Document KMZ*

Team of workers from the optical workshop in 1945.

*Document KMZ*



In the KMZ Hall of Honor, the KRASNOGORSK world export map under the aegis of S. A. SYERIEV, who was the General Manager of the factory during the 60's and 70's. The factory received the Order of Lenin and the Red Flag of Labor.

1959

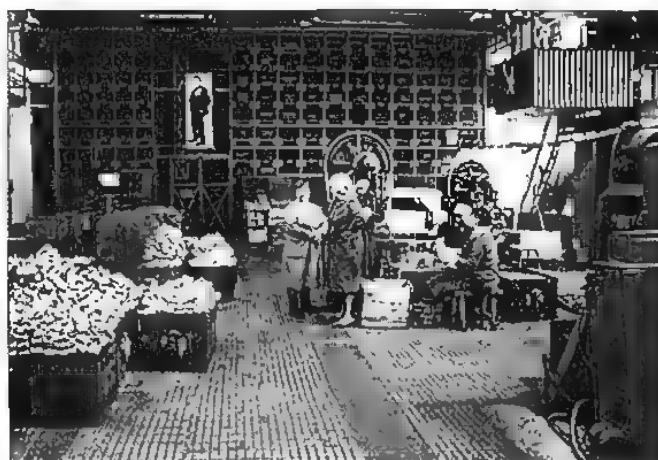
Left to right:  
Chief Engineer Yu. Soloviev,  
I. Mishutin,  
factory director N. M. Egorov,  
and chief technical designer  
for photographic equipment,  
E. V. Soloviev.

The Droog in the hands of Yu. Soloviev,  
and the Droog-2  
in the hands of his brother,  
E. V. Soloviev (right).  
Clockwise below the Droog-2 are:  
the Astra Stereo, the Kometa,  
the Start, and the Iskra.  
All in all, a nice haul...





Foundry for body castings. Right next to ultra-powerful injection molding machines, women workers manually pour molten aluminum into the reservoirs.



In-process storage of body castings.  
A worker strikes a pose under Lenin's "paternal" gaze;  
the floor is made up of aluminum ingots.



The 10 MILLIONTH ZENIT, a ZENIT-EM  
KMZ Museum.

During the second half of the fifties a portion of the range of lenses offered by KMZ – the Orion-15, Jupiter-12, Jupiter-8 (still being made in 1989), Jupiter-3, Industar-50, Jupiter-9, and Jupiter-11 – is sent for mass production in associated factories outside the Moscow factory. these include: LZOS in Lytkarino, KOMZ in Kazan, ZOMZ in Zagorsk, all of them being affiliated with the KMZ group. (see p 266)

1955: a true stroke of genius: the creation of the ZENIT.

The union of the ZORKI and a reflex housing.

One of the most compact full frame SLR's ever made, but also the reflex camera that spawned the most offspring

Freed of the responsibility of making quantities of lenses for aging cameras, the KMZ engineers in the sixties will enter into a new period of super-creativity: KOMETA, DROOG, START, ZENIT-6 equipped with the RUBIN zoom, ZENIT-E, FOTOSNIPER, ZENIT-7, ZENIT-D, HORIZON, ISKRA, NARCISS...

However, many of the cameras never progress beyond the stage of prototypes or pre-series production, because they are too expensive to make. The "5-Year Plans" insist on production; the objectives of the 5-Year Plans are to be respected.

From 1950 to 1959, KMZ camera production, all models and types included, runs around 400,000 units per year, with an overall total for USSR production of almost 9 million cameras (1957)

From 1960 to '69, the figure drops to around 350,000 per year, maybe because of the creativity. Then in the seventies, the figures reach 650,000 cameras annually.

These are the years of the new commercial offensives, with cameras like the ZENIT-E, EM, FOTOSNIPER.

The year 1980 sees the record breaking figure of 425,000 cameras made by KMZ, (out of 2.4 million in Russia, plus 500,000 in the Ukraine, and 1.4 million in Belorussia.)

The last decade, corresponding to the 11th "5-Year Plan" (1981 to 1985, later extended to 1989) sees a total of more than 4 million cameras.

During these last 40 years, KMZ is not only a maker of cameras. It is one of the most powerful military industrial complexes in the USSR.

It is a metal foundry (especially for aluminum and alloys), a lens grinder, constructor and assembler of precision micro mechanical devices (see p. 190), but also in fact especially, a supplier to the Soviet army and to the space program.

KMZ and its related companies employ more than 32,000 people in 1989. The group even includes a kolkhoz (collective farm) that produces cereals and citrus fruits principally for KMZ employees.

The KMZ factory is in Krasnogorsk, and Krasnogorsk is the KMZ company town.

The factory is named for S. A. SVERIEV, one of the most influential KMZ postwar managers.

The current Managing Director is A. GOIEV.

1994. In its exhibition at the Cologne (Germany) Photokina, Optics House offered fans of Soviet equipment three displays, showing equipment from four factories in three countries





Lens grinding room in the prototype lens division, KMZ 1992.



Assembly lines of the ZENIT-122.  
Panoramic shot taken by the author using a Horizon-202.

In the KMZ lineup were not only several ZENIT novelties, the ZENIT-AM3, ZENIT-212K and "spy cameras" known as the F21 and the MA-2, but especially a new large-format, but I mean LARGE-format, panoramic called the HORIZON 205-PC to complement the existing HORIZON-202.

The following Photokina shows in 1996 and 1998 underscore even more than the 1994 edition, the disarray of the Russian, Ukrainian, and Belorussian camera industries.

There are few new offerings; only spy cameras and night-viewing devices of all shapes and sizes.

Production of these devices, which had been severely hidden in the Soviet Union, is now out in the open for all to see.

Is it the former civilian production which is now under wraps?

We remain hopeful that the forthcoming millennium will produce some surprises.

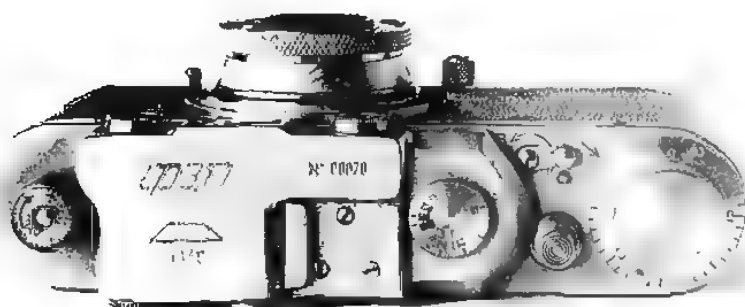
Maybe a 21st century Zorki?



The ZENIT 212K presented at PHOTOKINA 1994 (see first edition) was never produced. This ZENIT 122, likewise presented at PHOTOKINA 1998 may not be series produced either. That would be a shame because this ZENIT "MADE IN RUSSIA" has some very attractive features.

The first 39mm Leica-thread bodies assembled in Moscow are FED cameras. They are built in late '47/early '48 in collaboration with engineers sent from the FED works. (see p. 88.)

In those years, according to the Soviet photographic mentality, the home-built version of the Leica is called the FED; therefore when the FED name was engraved over the KMZ logo this was not intentionally done with the idea of usurping the name.



The Gavrilov team (p. 122) rapidly develops the design.

Starting in early 1948 the engraving is embellished with the name "ZORKI," the Russian word for "a piercing regard."

A new, great Leica copy was born.

**FED KMZ # 00070**

Document H.P.R. (22)

**FED-KMZ 1948**

**N° 00070**

**K20**

"Conceived" by N.A.Gavrilov

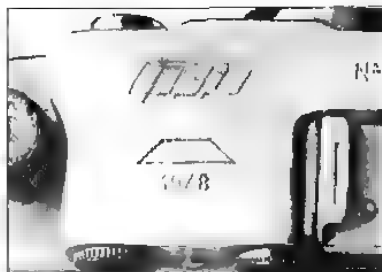
Preseries of the FED-ZORKI First FED's assembled in Krasnogorsk.

The shutter goes to 1/1000s.

Exceptionally rare, this is a key piece for a collector of Leica copies or Russian cameras.

But watch out! New "factory constructors," gifted engravers that they are, could understand this too and offer you in the near future a FED-KMZ # 52, or #38, or even #00001.

It's up to you to verify the camera's characteristics.



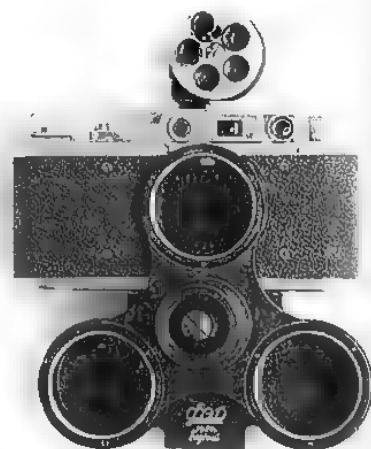
**FED-KMZ 1948 engraving**

Document H.P.R. (22)

**FED-ZORKI lens turret 1948 N°012P**

**K39**

Several documents in Sov. Foto show 3-lens turrets (see p. 177.) This superb turret (which would appear to be original) envisaged for the FED-ZORKI illustrates the dynamism that reigned in the KMZ workshops in 1948



Doc. T. Bernad

## FED and ZORKI, a real passion.

For a long time, FED's and ZORKI's for western collectors, were only poor Russian Leica copies, stuck on shelves alongside the sublime Leica, mostly as curiosities. The recent appearance on the market of "300 Leica Copies" and "Leica Copies" (21 and 22) in the early '90's has developed a new fascination with the "ersatz" versions of Oskar Barnack's masterpiece, whether these are Austrian, Italian, Japanese (with record-breaking sales prices) or ... Russian.

The fall of the Berlin Wall and the opening of the former communist countries to Western markets have amplified the interest of western collectors for ex-Soviet manufactured products, especially cameras.

Some of them have since become collectors specializing in a single brand, family, or type of camera, such as the FED, ZORKI, or KIEV families, or spy cameras as a type. (see p. 188.)

During my research, several collectors revealed to me images or lists of some impressive collections of FED and ZORKI equipment. My thanks go out to them once again. These are truly fascinating subjects, worthy of passion. And since their production figures are enormous, and the variations - versions, sub-types, standard cameras or commemorative ones, original or "modified," there should be something available for everybody. Perhaps ..

## **FED-ZORKI 1948 N° 0373 K30 - K40**

**Around 5500 units produced**

Production startup unit, still made from original FED parts.

Little by little the subassemblies are made in Krasnogorsk.

Likewise, the lenses begin to be made in house. The stocks of ZK and BK lenses of Zeiss origin (see p. 142) gradually run out and are replaced by locally produced ones.

Initially, the engraving "ZORKI" appears, to be replaced by the KMZ logo.



**K30 - FED -ZORKI #0373**

**K30** - Body # 0373 is a FED-1, type d, presenting the same covering, the same mat chrome finish and the same interior finish. The lens (K330) is a FED Industar-22 with #11287 embossed in the rear of the lens mount according to FED style.

The lens face is in aluminum with Moscow and the KMZ logo engraved on it. The lens is not coated, the f-stops are geometric progression, and the overall finish is only mediocre.

**K40** - Body #03914. Already looks like a Zorki with the "rice-grain" texture in the cover material, a finer grain chrome, and the base plate of the lens machined and painted. The engravings on the shutter speed dial are finer.

The lens is a ZK (Sonnar-Krasnogorsk) 2/5cm -1948- #004395.

Aluminum collapsible mount (K500).

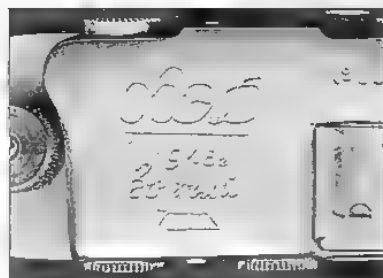
**K45** - Body #04402 has a level of finish near that of the ZORKI - bright chrome and overall a better level of finish.

Coated Industar-22 lens (K340) with the KMZ logo on the face. #03178 is visible at the rear of the lens, as on K330, but engraved.

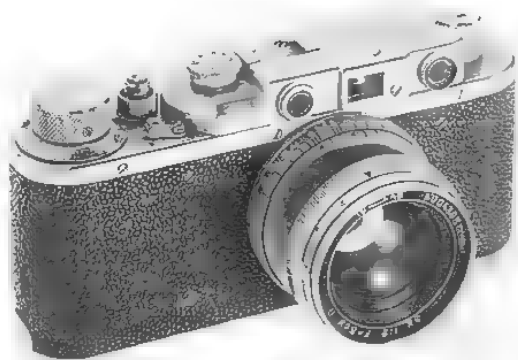
**K49** - Body #04956, marked 1949, is delivered with a ZK 1,5/5cm lens (K600).

**Variants:**

K31- K41- K46 - with the 1/1000s. top speed.



**FED-ZORKI 1948**



**K40 - FED -ZORKI**

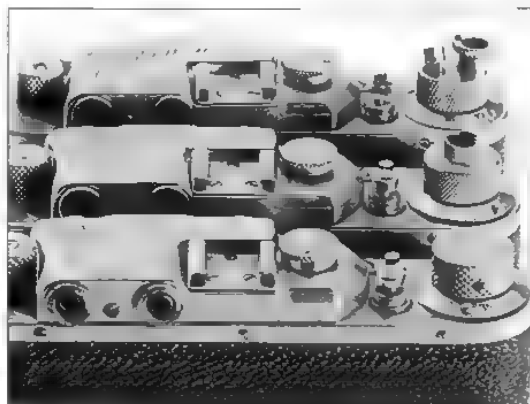
*Benchmark : the Instruction book from a 1948 FED (FED-ZORKI) shows camera #00101 (p. 122) with 1/1000s. the lens is a K340.)*

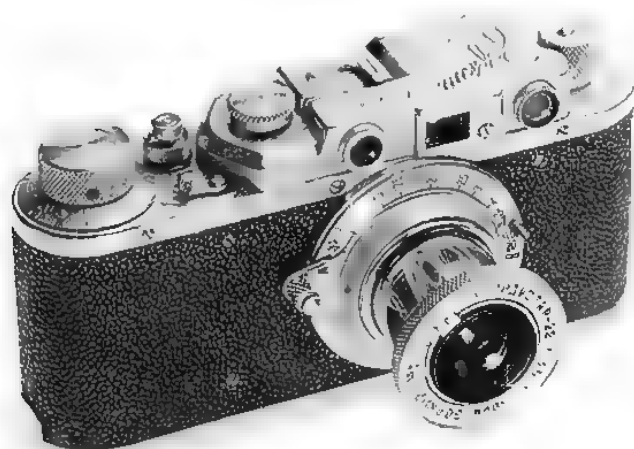
## **Evolution from FED to ZORKI**

Between 1947 and 1949 the ex-FED body evolves to become, under Gavrilo's directives, an international class camera. While FED is reserved for domestic consumption, KMZ has export in mind!

The basic differences between a FED, a FED-ZORKI, and a ZORKI are:

- the modification of the release mechanism and threading for a cable release in 1950 on the ZORKI-1, type B.
- the use of cast parts for the ZORKI body, starting with model 1c, is identifiable by the rim running around the top plate (see next page.)





Following the FED-ZORKI, more than 835,000 units of the ZORKI are produced from 1949 to late 1956, with very few mechanical modifications.

- 38,186 in 1950,
- 70,501 in 1951,
- 128,752 in 1952,
- 152,150 in 1953,
- 190,500 in 1954,
- breaking the record in 1955: 204,400 units,
- and only 34,377 in 1956.

## ZORKI type-1a 1949 -1950

### **"PIERCING REGARD"**

**K50**

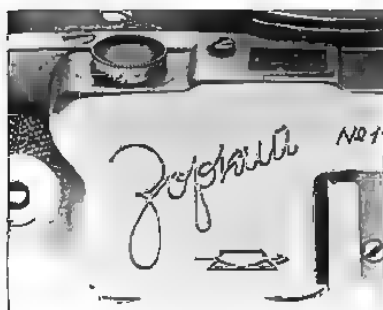
around 2000 units (from 5500 to 7500, estimated)

Identical to the FED-ZORKI (see preceding page)

The collar around the shutter release can no longer be removed

On the top plate is a new ZORKI logo in cursive Cyrillic characters above the new KMZ logo (in which the "tomb" is now crossed by an arrow.)

Delivered with the Industar-22 'ZORKI' lens (K345, then K350), in addition to the range derived from the BK and ZK (p. 132, 133).



ZORKI engraving



K60 - ZORKI-1b

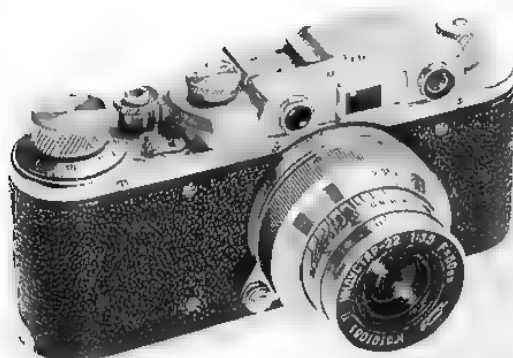
## ZORKI type-1b c1950 - 1951

**K60**

#44822. Estimated to begin with #7500 (22)

Identical to the ZORKI Type 1a, with another modification to the collar around the shutter release, which is now threaded to accept a cable release.

Larger figures engraved on shutter speed knob.



K71 - ZORKI-1c

## ZORKI type-1c c1951 - 1953

**K70**

Identical to the ZORKI Type 1b, but henceforth using injection molded parts for the shutter assembly casing and the camera chassis.

Chrome parts outlined by a decorative rim.

Index mark on the release collar.

the accessory shoe loses its engravings.

Variant:

K71 - ZORKI engraved in both Cyrillic and Roman letters on the same surface, and the "MADE IN USSR" inscription is also in both alphabets. the serial number is still above the accessory shoe.

## **ZORKI type-1d c.1953 - 1954**

**K80**

Identical to the ZORKI Type 1c, but the rim is extended around the lens mount. This decorative element is part of the casting and cannot be removed from the body.

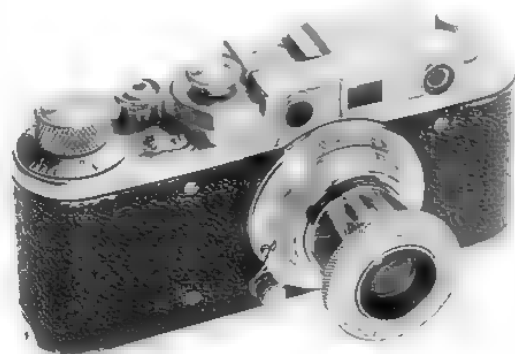
Body finish material is once again synthetic leather.

The inscriptions on the top plate are embossed rather than engraved.

*Variants:*

K81 - Top plate with bilingual inscription similar to the one on K71

K82 - Serial number moved to the rear surface beginning in late 1954.



**K80 - ZORKI-1d**

## **ZORKI type-1e c.1954 - 1956**

**K92**

**About 240,000 units made**

Identical to the ZORKI type 1d, but with the new international shutter speed sequence B; 1/25s. - 1/500s. Serial number engraved on rear of top plate. Delivered with Industar-22 lens (K365, K370)

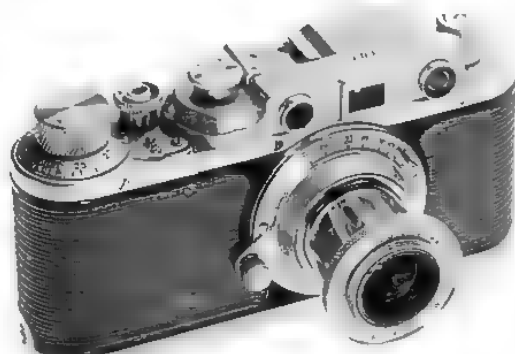
*Variants:*

K90 - ZORKI embossed in top plate

K91 - Top plate with inscription in both Cyrillic/Roman letters.

K92 - Identical with K91 with a "luxurious" covering in blue synthetic leather, created to commemorate a VIP visit to Krasnogorsk.

Delivered with Industar "ZORKI" lens K350.



**K92 - ZORKI-1e**

## **ZORKI-YURA (ЮРА) c.1961**

**K225**

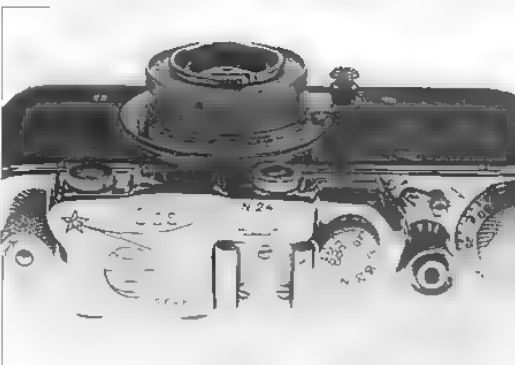
In Russian, Yura is the nickname for Yuri.

On April 12th, 1961 Yuri Gagarin conducts the first trip into space.

This event of international stature gave rise to only a small series of commemorative engravings which the City of the Stars (headquarters of the Soviet Space program) ordered from the KMZ factory, to be performed, somewhat curiously, on ZORKI type 1 cameras.

Thus the author presents this camera with some reservations, and a warning to collectors that counterfeits would be easy to make.

However, the camera illustrated here seems to have all the necessary guarantees of authenticity (!) since it was brought back from the City of the Stars as a souvenir by a French engineer around 1975, at a time when counterfeiters (of Russian cameras) were not yet in business.



**Yura / Yuri Gagarine**

*Doc O. Peridy*

## **ZORKI "250" Reporter**

**K220**

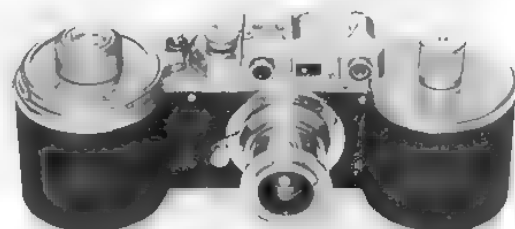
A copy of the Leica Reporter, a limited number of ZORKI-250 cameras seem to have been made for tests, according to KMZ records.

However, it is more common to run into well-made fakes than to see originals, which were often not very well made.

## **ZORKI "75"**

**K223**

A very beautiful fake. (see p.101 'left handed special').



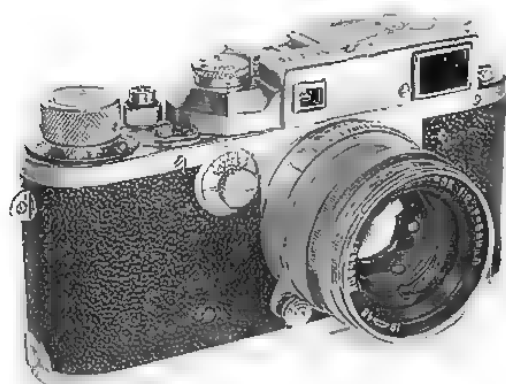
**ZORKI "250" Reporter**

## **ZORKI "FAKES"**

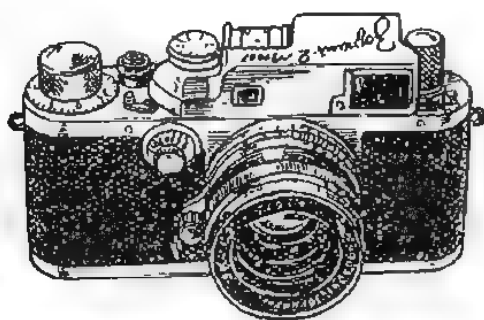
*Just as with the FED, ZORKI-1 cameras have served as the basis for all sorts of manipulations and unbelievable modifications that one might discover during the period 1992 - 99 (see pp. 100-101.)*

*The differences between a FED-KHARKOV and a ZORKI-KMZ (rangefinder coupling cam, inside shutter plate, etc.) should help you uncover these fakes.*

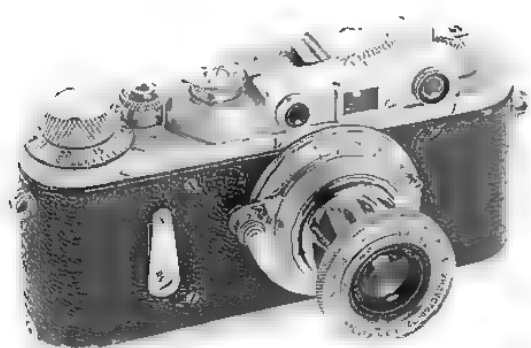
By Milos P. Mladek.



K130 - ZORKI-2 Prototype #00002 ZK 2/50mm lens  
Doc M P Mladek



ZORKI-2 Prototype #00007 illustrated in the booklet.



K135 - ZORKI-2 "classic"

## ZORKI-2 Prototype c1950 !!!

Precursor or prototype of the ZORKI-3, the authenticity of this body is confirmed by the little booklet shown here, entitled "Sputnik Fotolubitel" edited in 1950. We call your attention to the fact that both the Zorki-2 AND the Zenit are illustrated.

Full frame 35mm with combined life size VF/RF. speeds: 1s. - 1/1000s.  
Metal body, like the Zorki-1a and 1b.  
1948 ZK lens.

## ZORKI-2 1954 - 1956

(10,310 units.)

Last version based on the Zorki 1 body.

Identical to the ZORKI Type 1e, with ZORKI-2 stamped in the top plate, plus a few improvements:

- Kiev-type self timer on the front of the body.
  - New shutter speed setting knob, larger with an index on the central shaft.
  - the shutter release button no longer turns when the shutter is being tensioned
  - the collar becomes the rewind clutch selector, replacing the lever
- Delivered with Industar-22 or Industar-50 lens. Strap lugs.  
Dimensions : 135x67x33mm.

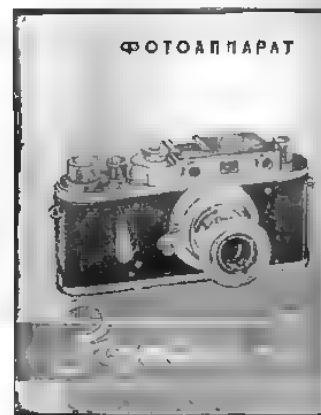
### Variants:

There are numerous styles of the Zorki-2" nameplate in Cyrillic, both stamped and engraved in the top plate. Some export cameras have a top plate with, in Cyrillic characters "ISGO-TOVLENO V SSSR" ("MADE IN USSR") instead of the KMZ logo.

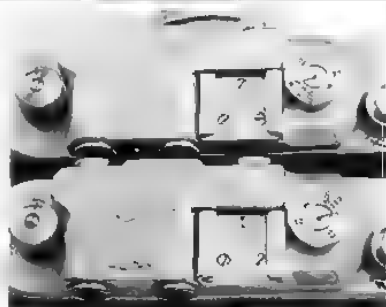
K130



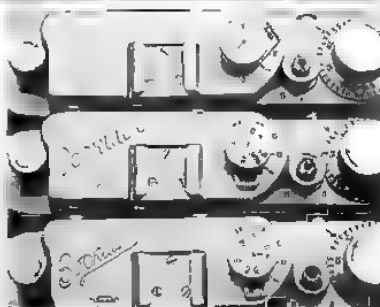
K135



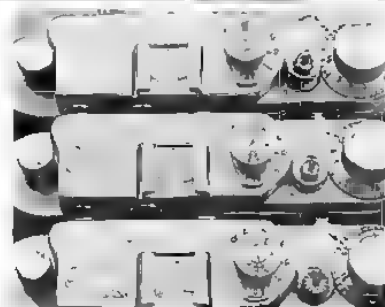
Mode d'emploi du Zorki-2. Document D Delker



Two Zorki 2 engraving styles. Doc. A. Kasuya



Three Zorki 2 engraving styles. Doc. A. Kasuya



Three different engraving styles.  
three different control knobs,  
three different shutter releases.  
Doc. A. Kasuya

On the Zorki "2", "S", and later "2S", one often finds different styles of the name, along with different finish details of the advance and rewind knobs as well as the shutter release support collar.

# ZORKI-3

# ЗОРКИЙ-3

**ZORKI-3 1951 - 1955**

(total 3+3M: 87,569 units)

Conceived by N. Marienkov

See also: the FED-2 prototype (F100 p 69) and the Zorki-2

**K100**

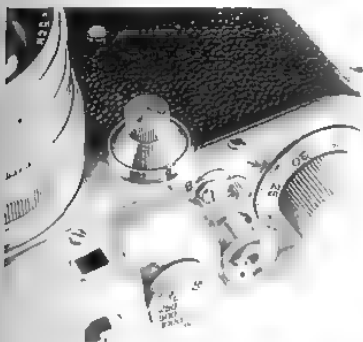
New body based mainly on castings, with certain technical modifications aimed at fully utilizing the injection-molding techniques already beginning to be incorporated in the Zorki-1. Full-frame 35mm camera with life-sized combined RF/VF incorporating diopter adjustment.

Cast aluminum back, removable, closed using two keys.

Speeds: B; 1s - 1/1000s. (Sync. speed 1/25s.)

Slow speed control knob on camera front. Strap lugs.

Dimensions: 146x84x35mm.



*Variants:*

K101 - with balance foot, like

Contax and Kiev.

K102 - without balance foot.

K103 - body in olive drab green.

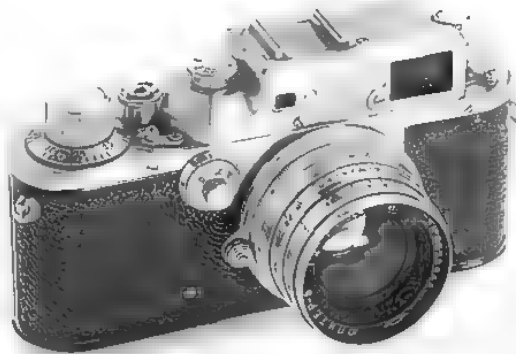
K105 - "Classic" version. (with many variants).

A few units of the Zorki-3 are delivered with a slow speed locking device, "à la Leica".

Document A.Kashyva



**K100 - ZORKI-3 Prototype** - Look at the differences of the top plate, compared with the prototype Zorki-2 p.130



**K105 - ZORKI-3 "classic"**

# ZORKI-3M

# ЗОРКИЙ-3М

**ZORKI-3 M 1954 - 1956**

"M" is for Marienkov.

**K110**

Mass produced model of the ZORKI-3, with a major modification:

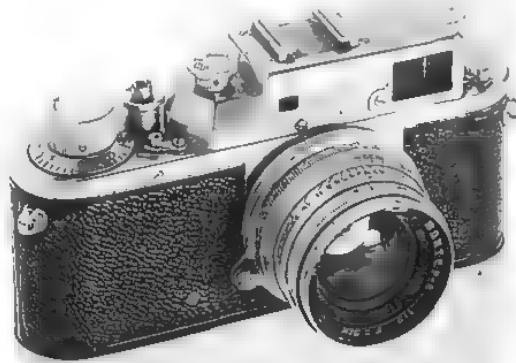
Slow and fast shutter speeds are on the same control knob. (59)

Delivered with the JUPITER-8 (K550).

*Variants:*

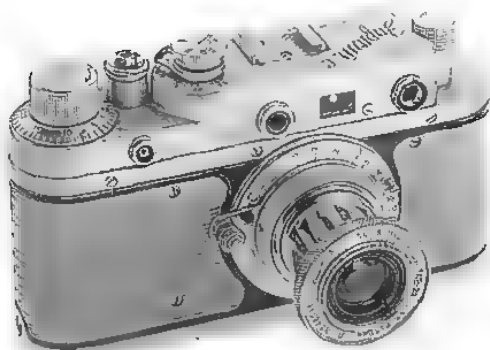
K111 - c. 1955 the 3M cameras are delivered with factory sync.

K4500 - ZORKI-3M military version (see p.202)

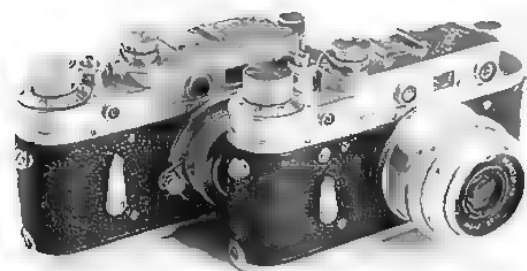


**K110 - ZORKI-3 M**





K141 - ZORKI - S



ZORKI-2S Doc. A. Kasyan



11ZORKI-3

Document Moscow Polytechnical Museum



K163 - ZORKI-3S

## ZORKI-S (ЗОРКИЙ-С) 1955 - 1958 (472,702 units) K141

Identical to the ZORKI Type 1e with top plate redesigned to take a sync delay lever, adjustable to 25 milliseconds.

Shutter mechanism of the ZORKI-2, B; 1/25s. - 1/500s

*Variants:*

K140 - early prod. : serial number on top plate, beneath the KMZ logo.

K141 - light grey covering

K142 - green covering.

K143 - "Festival of Youth" markings; 1957 (on 1956 and '57 bodies.)

+ a wide variety of "Zorki S" symbols in Cyrillic, engraved or embossed.

*Accessory:*

K230 - stereo adapter.

## ZORKI-2S (ЗОРКИЙ-2С) 1955-1960 (214,903 units) K150

Identical to the ZORKI-S, with sync adjustment to past 30 milliseconds

As with the ZORKI-S, delivered with Ind.-22 (K365) or -50 (K400-K410).

*Variants:*

K151 - light grey covering

K152 - green covering.

K153 - with self-timer.

K155 - Festival of Youth (1957)

+ a wide variety of "Zorki-2S" symbols in Cyrillic, engraved or embossed.

+ the advance and rewind knobs comes in several finish styles: oblique knurling, horizontal knurling, oblique lines.

## ZORKI-3S (ЗОРКИЙ-3С) Preseries 1955 K160

Based on the ZORKI-3M, with a new top plate that encompasses all the controls. Shutter 1s. - 1/1000s. (1/25s. sync. speed)

Sync. contact on the camera front.

Solid accessory shoe, as on the ZORKI-3.

Sync delay selector to 25 milliseconds

Rewind clutch release done by rotating the shutter release button with the thumb (on the prototype.)

frame counter included in the advance knob.

strap lugs.

dimensions: 143x90x35mm.

## ZORKI-3S (ЗОРКИЙ 3С) 1955-1956 (45,572 units) K163

Production model. Warmup run for the ZORKI-4, destined to become the 800 pound gorilla of Soviet production, and setting the stage for the records set by the ZENIT-E

Identical to K160, with a development of the rewind mechanism.

Delivered with the Jupiter-8 (K550 - K560) and JUPITER-3 (K610) lenses

*Variants:*

K164 - "Festival of Youth" engraving (1957).

K165 - Various ZORKI 3S graphic styles.

K166 - an "interesting variant" with NIKON markings was offered at the Christie's auction of June 8th, 1995

# ZORKI-4 / MIR

**ZORKI-4 1956 - 1973 (1,715,677 units) K170**

Identical to the ZORKI 3S with a self timer.

Delivered with JUPITER-8 (K560) or INDUSTAR-50 (K410 and K430).

First ZORKI exported in large quantities.

*Variants:*

K171 - with rim around the finder like the ZORKI-3S

K172 - various styles of the ZORKI-4 name plate in Cyrillic letters

K173 - various styles of the ZORKI-4 name plate in Roman letters

**ZORKI-4 "ANNIVERSERY" K176**

During the nearly 20 years of the production of the ZORKI-4, several commemorative series are delivered:

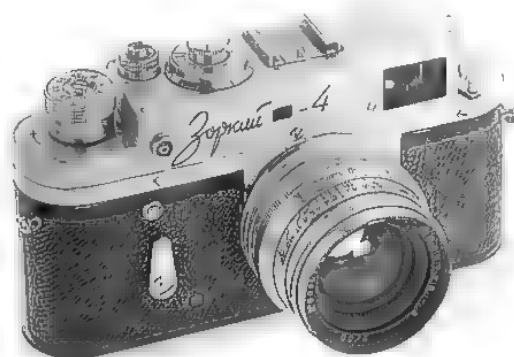
K175 - Festival of Youth (1957).

K176 - 50 years - OCTOBER (anniversary of October 1917-1967)

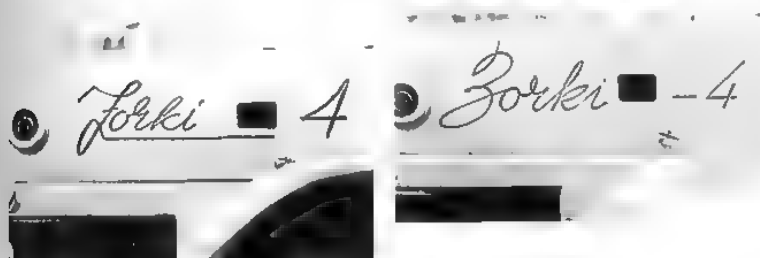
silkscreened in either black or red.

K177 - AURORA.

K178 - 50 years of Soviet Power (1967) (22)



ZORKI-4 the "Great Classic"



ZORKI-4 with logo K173, and K175 Document R. Reutter



ZORKI-4, K175.

Document R. Reutter

**MIR 1959 - 1961 "PEACE" (156,229 units) K180**

Originally this was an economy version of the ZORKI-4 reserved for the domestic market.

Simplified shutter, without slow speeds and without 1/1000s. but with the new standard sequence: B; 1/30s, 1/60s. - 1/500s.

Self timer with lever aimed either up or down.

- delivered with Industar-50 (K400 and K410), or Industar 26M (F271).

- for the export market, delivered with Jupiter-8.

*Variants:*

K181 - with 1/500s., plus a dot representing 1/1000s.

K182 - with 1/1000s.

K183 - with a raised edge around the viewfinder and rangefinder windows.

K184 - without raised edge around the viewfinder and rangefinder windows..



ZORKI-4 with 50th anniversary October marks K176

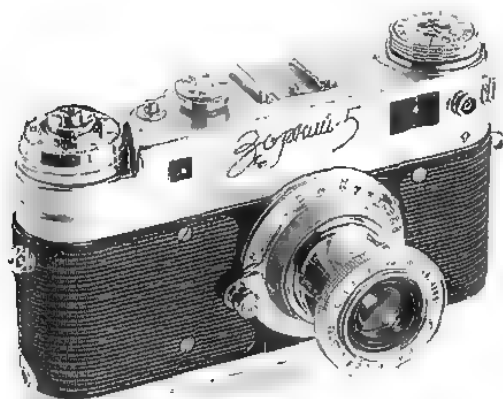


MIR with K178 marks Document J. Domel

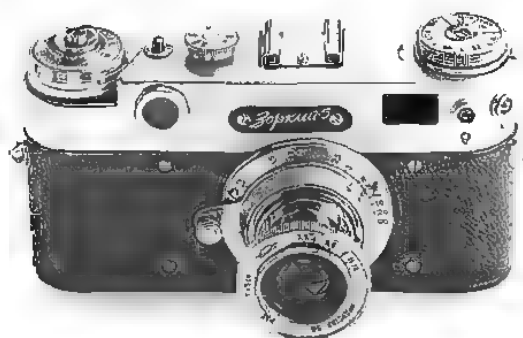


K180 - MIR

Document A. Kasuya



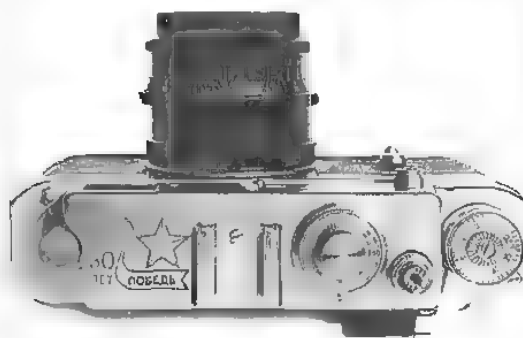
**K190 - ZORKI-5** Document Dieter Scheibn



**K195 - ZORKI-5**



**K200 - ZORKI-6**



**K215 - ZORKI-4K** Document J.C. Lombard

## **ZORKI-5 1958 - 1959** (c.125,000 units) **K190**

The ZORKI-5 is the first rangefinder 35mm from KMZ with a lever advance. (nb: see GOMZ SPORT-JUNOST p.62 and KMZ reflex START p.176.)

This combined lever advance/shutter release button is then used on the ZENIT-3M et ZENIT-E.

Based on the ZORKI 2S, the ZORKI-5 gets a new top plate that includes a long-base (67mm) rangefinder in a large rectangular window, recalling the one on the FED-2 (p.102).

ZORKI-5 name engraved in red Cyrillic letters.

shutter B; 1/25s. - 1/500s. with M/X sync.

large flat retractable rewind button with film-speed reminder strap lugs. Dimensions: 143x80x35mm

**Variant:**

K191 - name engraved in black Cyrillic letters.

## **ZORKI-5 1959 2nd version** (c.11,500 units) **K195**

Identical to K190, but with round RF window, therefore adjustable from the exterior of the camera. (see FED-2 p 102).

ZORKI-5 nameplate in Cyrillic screwed on front surface of top plate.

These two modifications appear at the same time as the ZORKI-6 comes out.

Delivered with Industar-50 (K400)

**Variant:**

K196 - ZORKI-5 nameplate in Roman letters.

## **ZORKI-6 1959 - 1966** (385,207 units) **K200**

Identical to the ZORKI-5 2nd version, but with hinged back (see the Krissal p.150). Shutter B; 1/30 - 1/500s. M/X Sync. self timer.

delivered with Industar-26M, Industar-50 or JUPITER-8

**Variants:**

K200 - ZORKI-6 nameplate in cyrillic screwed on front of top plate.

K201 - light grey covering.

K202 - green covering.

K205 - ZORKI-6 nameplate in Roman letters.

K4200 - Version with "special reflex housing" (see p.199).

K4300 - Version S206 (see p.198).

## **ZORKI-7 Prototype** **K208**

## **ZORKI-4K 1972 - 1978** (524,610 units+36 in 1980) **K210**

Identical to the ZORKI-4 with special lever wind but no strap lugs.

New standard speed sequence: 1s; 1/30s - 1/1000s.

Delivered with black finish Jupiter-8 (K570). The ZORKI-4K was exported in large numbers.(146)

**Variants:**

K211 - ZORKI-4K silkscreen in cyrillic letters.

K212 - Various types of silkscreen logos in Roman letters.

K213 - Moscow Olympic Games.

K214 - Body in black lacquer. (possibly not authentic?)

K215 - Silkscreened "30 years of Victories" (1974)

- several shapes of advance levers.

## STEREO ZORKI .

A few thousand units c1955 - 1960

### K230

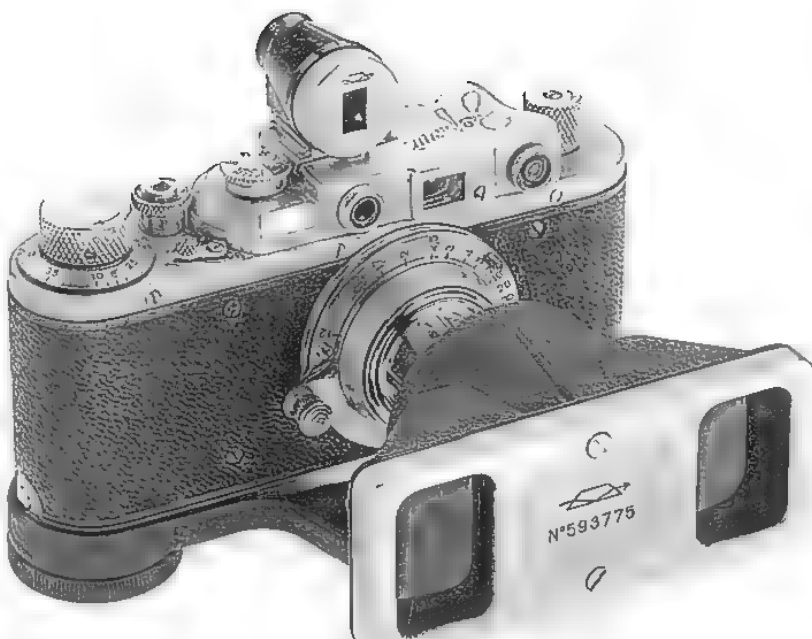
Easier to find than the ASTRA, this stereo outfit was available with a ZORKI-1 or ZORKI-C body 1955 and 1960

It consists of a rigid housing in cast aluminum that is screwed to the base of the camera, and designed to work with the collapsible Industar-20 or 50.

A prism beamsplitter device splits the normal 24x36mm format into two 18x24 images, with indistinct edges.

The field of view is defined by an adaptable, vertical format viewer which was supplied with the outfit. (The finder is often missing from the outfits and is quite rare.)

A folding stereoscope with adjustable oculars is part of the kit as well.



## ASTRA

## ACTPA

Stereo camera of which only a few were made, of which most remained unfinished. Cast aluminum body making 2 images 24x24mm. Presented at the 1958 Brussels International Exposition where it was hailed by the media, the Astra never entered production. In the '60's the drawings were transferred to MMZ in Minsk, where they were filed...

### ASTRA 1958

### K240

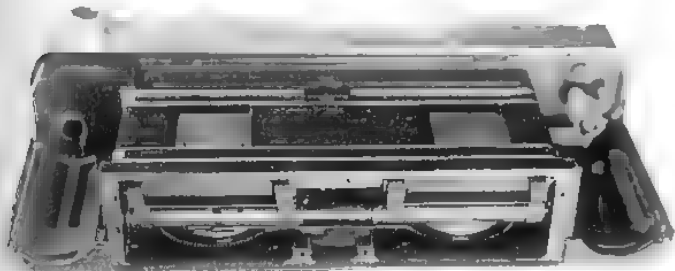
Created by G. M. DORSKY  
and Mme Tch. I. ZAMANSKAYA

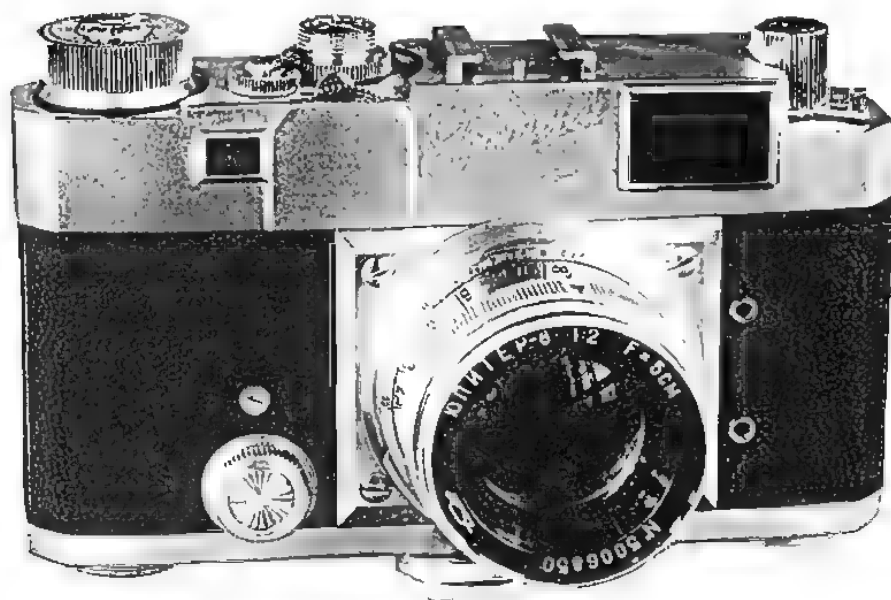
24x24mm STEREO with coupled  
Rangefinder  
matching Industar-60 2.8/35mm lenses  
twin vertical running shutters,  
Speeds: B; 1s. - 1/500s.  
Lever advance (Start type) coupled to film  
advance. M/X sync. Self timer.  
announced price in 1958: \$225.

See reports in "Popular Photography", 35mm Handbook  
by S. Nathan, U.S.A., and in "Le Photographe," France -  
1958.



Unfinished (unfortunately) ASTRA Document H.P.R

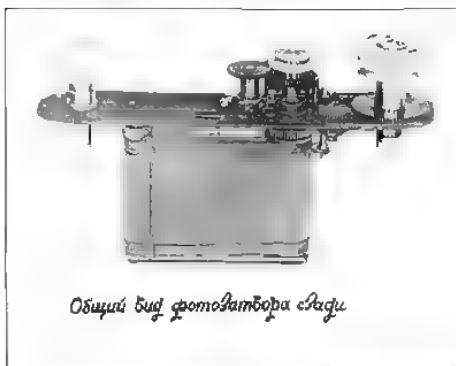
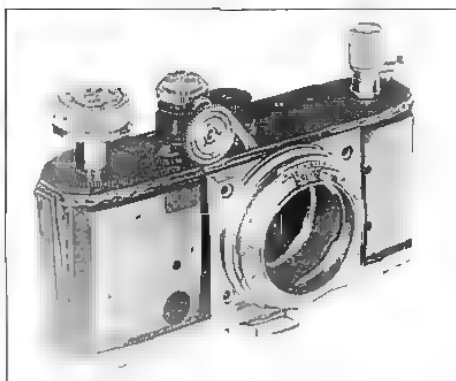




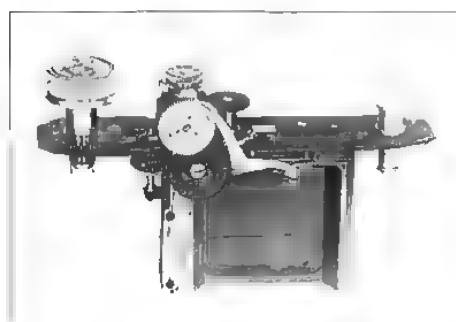
## RODINA 1952 "FATHERLAND"

Created by I.M. Marensov  
Developed by  
P.A. Tikhomirov

K250



Общий вид фотоаппарата Родина



The RODINA is the result of a bet made by a team of young, eager engineers under the direction of project director I. M. Marensov: to create a camera of "international standard" that incorporated the latest refinements and used only 200 parts.

Like the TSVVS from FED and the Nikon from Japan, the Rodina incorporates the best qualities of the Leica III and the Contax II. But with only 136 primary parts and 64 secondary ones.

The technology used called on the latest innovations obtained in casting techniques, already used for the benefit of the Zorki-3 which is revealed as the competitor of the RODINA

The project was judged to be too costly to lead to mass production, because while the RODINA was very economical in parts, its assembly required a high level of precision, not the case with the ZORKI-3.

Full frame coupled rangefinder 35mm camera. Body in cast aluminum alloy.

Life-size viewfinder with incorporated rangefinder and diopter adjustment.

Knurled advance/cocking knob with built-in frame counter.

Leica-inspired cloth focal-plane shutter. Two stage shutter-speed sequence: 1s. - 1/25s. on one crown; 1/50s. - 1/2000s. on another.

Exakta-type (!) flash sync with 2 separate contacts.

Contax-type double bayonet lensmount and knurled-wheel focusing.

Lens: bayonet-mount Jupiter-8 (remember that these lenses, in Kiev mount, were made by KMZ until 1955.)

Self timer

Cast back, removable, with two Contax-type closing tabs and balance foot around tripod bushing.

Only a few prototype RODINA were made.

In 1992 one of these unfinished prototypes still served as a paperweight on the desk of its development engineer, P.A. Tikhomirov, father of the current HORIZON 202 and 205, who also provided the documents presented here.

# P. A. Tikhomirov

Humble and discreet, P. A. Tikhomirov appeared to be a broken man when we had the good fortune to be introduced to him in 1990. But his clear, lively and inquisitive look reflected his true character hidden underneath.

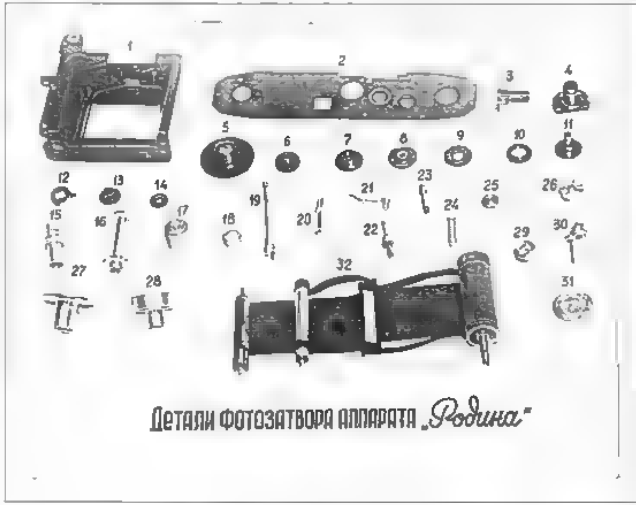
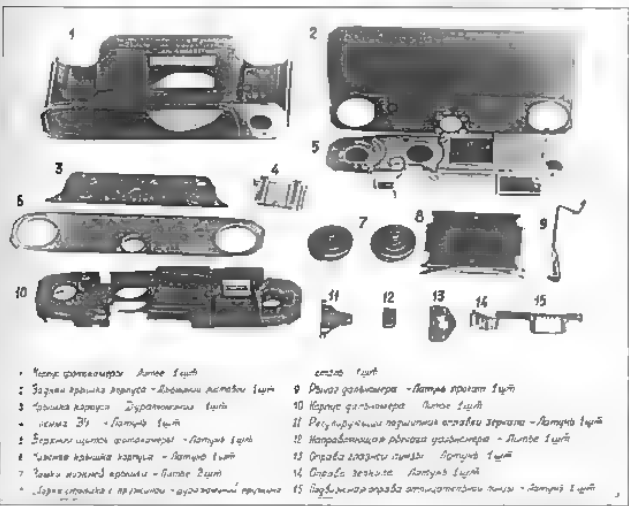
We were sitting around a drafting table debating the precise needs of a "western" panoramic camera, considering not only technical necessities but also the camera's design

We saw a flash of understanding when we told him that the camera should have a Russian look, distinct from anything from Japan or the west, and that the distinction should be made on the basis of the performance of camera and lens. (see p. 181.)

Despite terrible economic difficulties that beset KMZ during the last decade, the idea of such a camera persisted, prototype followed prototype, and the camera was presented at the 1998 Photokina. P.A. Tikhomirov, completely worn out, had died in 1997. And with him disappeared a memory of 50 years of KMZ.



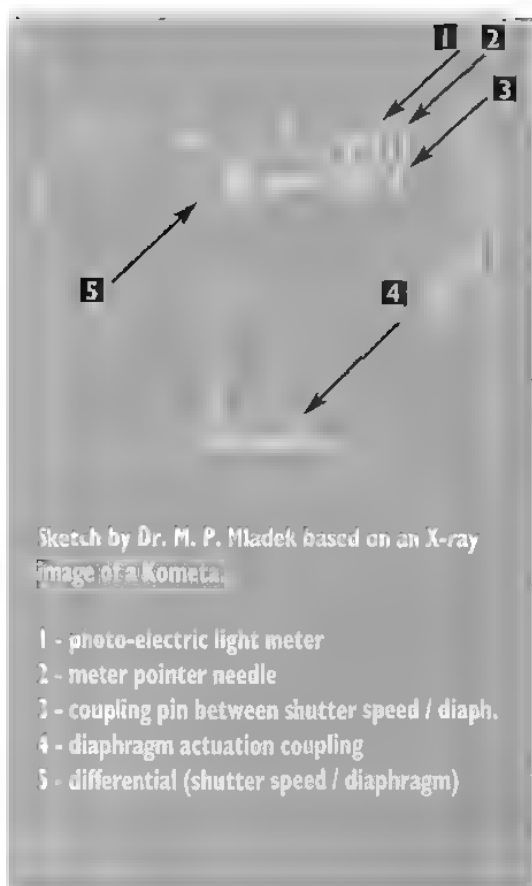
Plenary meeting of the Skhodnensk ward Committee c.1928  
In the centre (with cap) P.A. TIKHOMIROV





### KOMETA MERCURY-I lens

Document M. P. Mladek  
Photo P. Bobinsky



The Kometa was successfully introduced to the specialized press during the Brussels International Exposition of 1958.

Despite the camera's volume (Simon Nathan, an American reporter, initially mistook it for a medium format camera!), the journalists were favorably impressed. In 1957, it was the only rangefinder 35mm camera with built-in lightmeter cross-coupled both to the shutter speeds and to the diaphragm settings of all the lenses in the system. The Leica M series had a meter coupled only to the shutter speeds (from 1954) while the Contax never had meter coupling. Only the single lens reflex Nikon F had cross coupling via its external meter, toward 1959.

But the exact reason for the Kometa's presence in the Soviet Union pavilion was not readily visible to the visitor.

Even before considering the Kometa's intrinsic qualities, one must accept that it was the result of one of the greatest Soviet specialties *propaganda*. Engineers G. M. Dorsky, V. I. Pluzhnikov and A. P. Orlov, under the direction of E. V. Soloviev (see p. 123) had received a very simple set of specifications to fulfill: to create a full frame 35mm rangefinder camera incorporating all the best technology of the day, better than any other camera then available ...!!

Better than the Leitz's Leica M3; better than Zeiss Ikon's Contax IIIa, at that time the beacons of the world photographic industry.

In 1958 the Soviet supremacy in the space race was incontestable, Sputnik having been launched on October 4th, 1957.

It was therefore absolutely necessary to confirm this technological advance in other domains at the Brussels International Exposition.



Among all the other photographic and optical material shown at the Soviet Pavilion of the Exposition, eclipsing even the LENINGRAD, the KOMETA was the masterpiece.

Apparently two units of the Kometa were ready and working perfectly for the duration of the Exposition.

The goal was achieved, and the KOMETA was unanimously praised and flattered by the members of the international press. (Notably in the October, 1958 issue of Popular Photography and the 35mm Handbook by S. Nathan in the USA, and in the French magazine le Photographe (the Photographer.)

Once back in Moscow after its triumphal introduction, one Kometa disappeared, while the other becomes an organ donor for other projects. In any case, the camera was too expensive to make ...

Rather than choosing to become a great camera producer, the USSR opted for sheer numbers; quantity prevailed over quality.

*And the name of this camera will forever remain highly symbolic, orbiting the universe of photography like a ... comet.*

## **KOMETA 1957 "COMET" K260**

**2 cameras made (it seems ...)**

**Created by : G.M. Dorsky, V. I. Pluzhnikov and A. P. Orlov**

Full frame rangefinder 35mm semi-automatic camera.

Selenium lightmeter (16 – 250 GOST = 20 – 320 ASA) cross-coupled between shutter speed and diaphragm.

Body completely machined from aluminum alloy, including the top plate.

Combined VF/RF, with parallax-corrected bright-line frames for 50/85/ 135 mm fields, keyed automatically by the lens in use.

Single-stroke wind lever with film speed memo.

Automatic reset frame counter.

Removable back with two tabs, Contax-style.

Shutter release on camera front.

Leica-type focal plane shutter with speeds: B; 1s. - 1/60s. - 1/1000s.

*Flash sync:*

1s. - 1/60s. = "green zone" for X-sync.

1/125s. - 1/1000s. = "yellow zone" for FP-sync (long duration bulbs.).

B; 2 s. - 15 s. = "red zone" (full seconds).

Internal bayonet lensmount unique to this camera system.

Standard lens: Mercury-1 2/50mm

**Other interchangeable RF-coupled lenses:**

Russar 5.6/20 with finder

Orion-15 6/28 with finder (planned)

Jupiter-12 2.8/35mm with finder (planned)

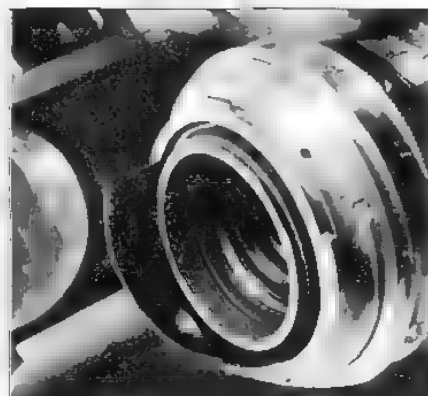
Jupiter-3 1.5/50mm, **keying frame line in viewer.**

Hélios-40 1.5/85mm, **keying frame line in viewer.**

Tair-11 2.8/135mm, **keying frame line in viewer.**

## **KOMETA**

*Doc M.P. Mladek*



**Focusing cam and diaphragm engagement lug on Kometa lens bayonet.**

*Doc. Popular Photography*

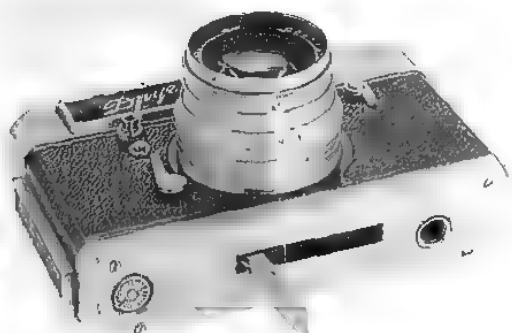


**Russar 2cm lens mounted on Kometa.**

*Doc. Popular Photography*



K270 - Droog, a very beautiful camera.



Droog. Trigger wind as on the Canon VT.

The DROOG, with its trigger wind "à la Leica" under the bottom plate and its 39mm screw thread lensmount was strongly inspired by the Leica and maybe the Canon VT (1957). Thus it qualifies as a "Leica Copy" (21-22). Primarily however, the DROOG is KMZ's answer to the GOMZ Leningrad, even though it was never as successful as its predecessor.

**DROOG 1960 - 1962 "FRIEND" (23,702 units.)**

**K270**

Conceived by SOLOVIEV (perhaps ?)

Full frame rangefinder 35mm with integrated life-size RF/VF.

Short base (43mm) high precision rangefinder

Frame lines for 50 and 85mm fields, not parallax corrected.

Focal-plane shutter with speeds: B; 1/2s. - 1/1000s.

X-sync at 1/30s. + M

"backwards" film path (right to left across the film gate) from the feed cartridge on right.

Trigger wind/advance located underneath body; no other possibility to advance film.

Shutter release below self-timer on front of body.

Retracting rewind knob located beneath body

Rewind clutch release on body front, opposite shutter release

Hinged back, with hinge on left side of camera back

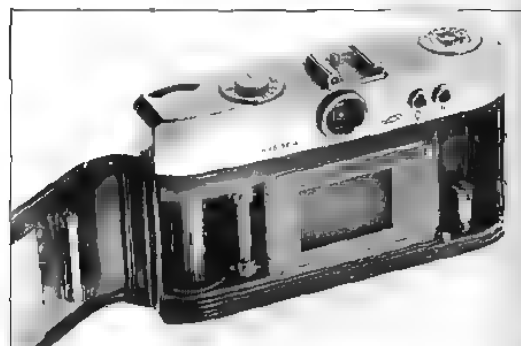
Delivered with Jupiter-8 2/50 (K560) or Jupiter-17 2/50 (K490)

Dimensions: 138x92x41mm

Variant:

K271 - DROOG logo in black on white field.

Droog, with back open



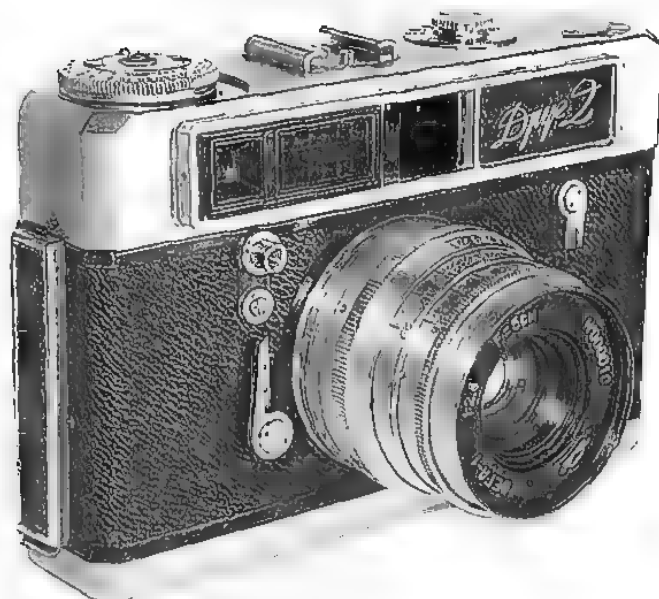
**DROOG 2 c1960 (only a few units) K280**

The prototype of this camera is visible (photo p.123) in the hands of Project Head E. V. Soloviev in 1959.

Identical to the DROOG, the DROOG-2 has, in addition, an uncoupled selenium lightmeter incorporated.

Proposed with the Vega-1 2.8/50mm or the Jupiter-8 2/50mm.

This camera never entered production. It would have been, with the Kometa, the only KMZ 35mm rangefinder camera with a meter.



The very rare Droog-2 with the extremely rare Vega-1 lens. Doc M.P. Miodak

# ZORKI-10/11/12

# ЗОРКИЙ 10/11/12

Inspired by the Japanese RICOH AUTO-35 of 1961, the ZORKI 10 or 11 and the LOMO VOSKHOD were precursors of the compact camera trend. However, the ZORKI-10 is the first automatic Soviet rangefinder camera.

## **ZORKI-10 Preseries (only a few units)**

**K290**

This preseries model is differentiated from the production version by a few esthetic details.

Full frame auto-exposure 35mm rangefinder camera.

Molded body, with front plate entirely finished in matte black chrome.

Automatic features can be overridden.

Frame finder with exposure needle visible in viewer.

Parallax marks for near focus views.

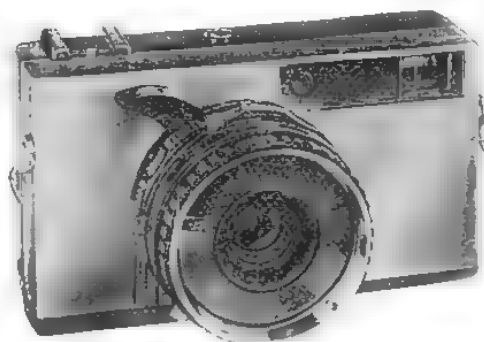
Focusing ring with click-stop detents at 1.5m, 10m, and ∞.

Advance/cocking by left-hand lever wind under the body

As with the DROOG and the VOSKHOD, the film advances from right to left on the ZORKI-10 and 11.

Central shutter with X-sync. Speeds: B; 1/30s. - 1/500s.

Industar-63 2.8/45mm lens.



ZORKI-10 preseries. Doc KMZ

## **ZORKI-10 1964 - 1978 (332,144 units.)**

**K292**

Identical to the preseries model, with redesigned shutter release and lightmeter located around the lens face.

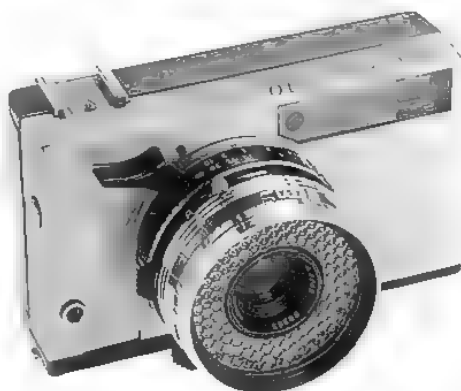
*Variants:*

K291 - ZORKI-10 logo in Cyrillic letters; various styles.

K292 - ZORKI-10 logo in Roman letters; various styles.

K293 - silkscreened nameplate REVUE-10 (Foto-Quelle c. 1976)

K294 - silkscreened nameplate "XXV 1976 PCUS" in red.



K292 - Zenit-10

## **ZORKI-11 Preserie (only a few units)**

**K300**

Identical to the K290, but without rangefinder.

## **ZORKI-11 1964 - 1966 (60,745 units.)**

**K302**

Identical to the K292, but without rangefinder.

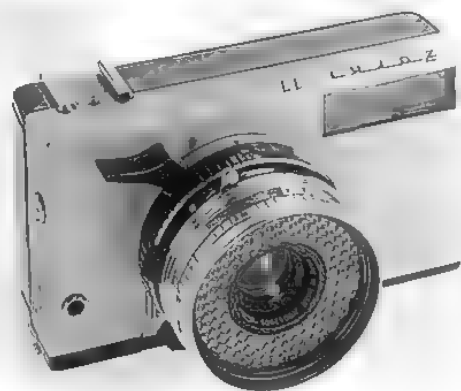
*Variants:*

K301 - ZORKI-11 logo in Cyrillic letters; various styles.

K302 - ZORKI-11 logo in Roman letters; various styles.

K303 - ZENIT JUNIOR logo in Cyrillic letters.

K304 - ZENIT JUNIOR logo in Roman letters.



K302 - Zenit-11

## **ZORKI 12 1967 - 1968 (7,200 ex.)**

**K320**

### **ZORKI AUTOMAT 18x24**

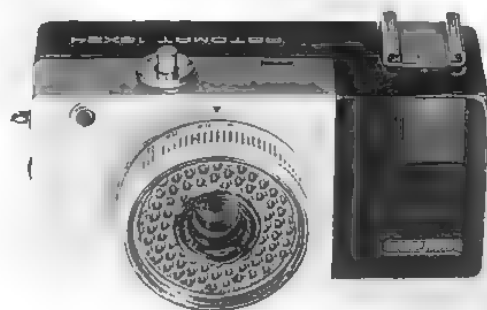
Although this mass market oriented camera was intended to replace the ZORKI-11, the ZORKI-12 never met with much success.

It should be noted that the ZORKI-12, like the SMENA SL from LOMO (p. 53) used the "SL ORWO" film which was virtually impossible to find at the time in Soviet shops. The only solution was to load the cassettes yourself. Half frame 35mm automatic camera. Galilean finder with frame lines. knurled knob. Automatic speeds: 1/30s. - 1/250s.

24 frame SL (Schnelladesystem) film from cassette to cassette feed.

Film speed adjusted inside the body (!).

HELIOS-98 2.8/28mm lens



Zenit-12 - Document J Daniel

# 39mm thread mount lenses

The INDUSTAR 22, from 1948 to 1953, followed by the INDUSTAR 50, from 1953 to 1971 remain two of the 39mm screw-mount lenses with the longest production runs.



**K332 - INDUSTAR-22 3.5/50 mm "MOSCOW"** (uncoated) #11287 On FED-"ZORKI" 1948.

Originally a FED lens (as confirmed by the style of the numbering.) Aluminum face.

K330 # <10000. Possibility of small focusing tab

K332 # >10000. Large focusing tab (above)



**K335 - K336 - INDUSTAR-22 3.5/50 mm "MOSCOW"** (uncoated)

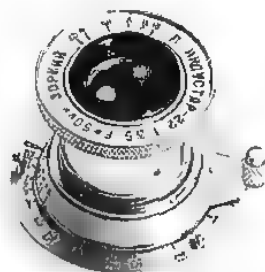
On FED-"ZORKI" 1948, originally FED lenses or from very early in the ZORKI production run. Therefore small differences in finish, such as the width of the tabs, are often seen. Brass face



Dimitry A. Kozlov



**K340 - INDUSTAR-22 3.5/50mm** (coated) On FED-"ZORKI" 1948 and 49 On body # 4402, the number 3178 is engraved on the rear of the focusing flange. Better level of finish.



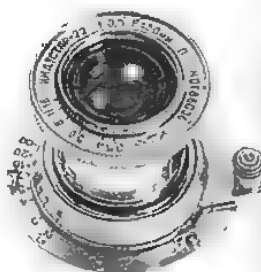
**K345 - INDUSTAR-22 3.5/50mm** "ZORKI" (coated) on Zorki Ia 1949 identical to the K340, but with ZORKI engraved instead of the KMZ logo. the number is still engraved on the back of the focusing flange.



**K350 - INDUSTAR-22 3.5/50mm** "ZORKI" (coated) on ZORKI Ib 1950 with lens #9396. Identical to the K345, but with new diaphragm control and new focusing knob design.



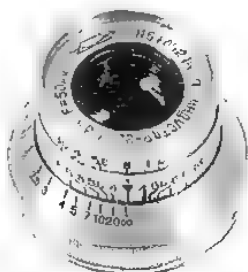
**K360 - INDUSTAR-22 3.5/50 mm** (coated) on ZORKI Ib - c. 1951 Lens # 5145185 with 51 prefix indicating year of production. Like the K350 but with new KMZ logo. (also exists with Kazan logo)



**K365 - INDUSTAR-22 3.5/50mm** THE "GRAND CLASSIC" c. 1951-52 on ZORKI Ib to Ia, on ZORKI 2, C, 2C, 3C, 5. Mir. Like the K360, but with serial number engraved on lens face.



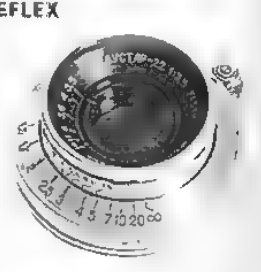
**K370 - INDUSTAR-22 3.5/50mm** "RIGID BLACK FACE" On ZORKI 1 and 3. 1951. # 5101061 (fewer than 2000 units). Aluminum barrel and mount; focusing tab. The entire front plate turns when setting the diaph.



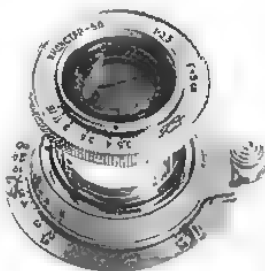
**K375 - INDUSTAR-22 3.5/50mm** "RIGID ALUMINUM FACE" on ZORKI 3 1951. # 5104216 (fewer than 2000 units) Aluminum barrel similar to K380 but without focusing tab. External thread for filter or sunshade.



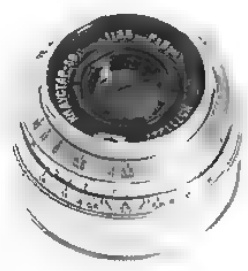
**K380 - INDUSTAR-22 3.5/50mm** 1960's. on ZORKI 2C, 5. Identical to the K365, but with straight instead of diagonal knurling (exists also with LZOP logo)



**K390 - INDUSTAR-22 3.5/50mm** c. 1952 to 54. # 54 349" Reflex version of the I-22 for the "Original" ZENIT. Aluminum barrel with focusing tab



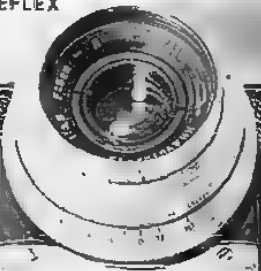
**K400 - INDUSTAR-50 3.5/50mm** Production from 1953 to 1971 on ZORKI 5 and 6. c. 1958. Printed letters and figures the serial number is on the focusing ring. Later produced by LZOS.



**K440 - INDUSTAR-50 3.5/50mm** 1960's. on ZORKI with extension tubes # 57 11222. Similar to the K420, but with flat face like K430. Weight: 126 g.

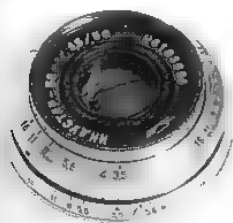


**K410 - INDUSTAR-50 3.5/50mm** from c. 1955 to 1966. Close to K420 but delivered on ZORKI 5 and 6. (# 6048680).



**K420 - INDUSTAR-50 3.5/50mm** c. 1952/1954: New optical formula. Close to K390, but without focusing tab. see p 148 on ZENIT

In 1949 on ZK lenses, and around 1950 on Industar 22 lenses, the first two numbers of the lens serial number designate the year of production. (e.g. 4900268)  
A single or double zero as a prefix indicate a preseries numbering (e.g. 0188035).



**K430 - INDUSTRIAR-50 3.5/50mm**  
around 1955 to '70. On ZENIT screw-mount (S, 3, 3M, Kristal) # 61 03698. Exists in chrome and black with simplified engraving such as "50/2." See also ZENIT 66 p.111



**K450 - INDUSTRIAR-50-2 3.5/50mm**  
around 1965 to '80. On ZENIT screw-mount (E et B). # 86 071130. Very close to K440; exists with extension tube like K430, in black or chrome, for ZORKI 4.

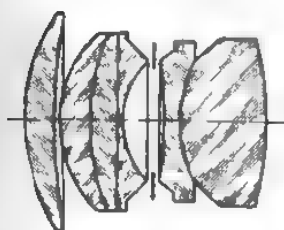


**K455 - INDUSTRIAR-22 3.5/5cm**  
c1953. Prototyp for the ZENIT

**K457 - INDUSTRIAR-50-2M 3.5/52mm**



**K470 - INDUSTRIAR-50MT**  
For the ZENIT SURPRISE  
(see also reflex lenses p. 166/167)



Cross section of ZK 2/5cm  
Z K = Sonnar Krasnogorsk.  
from 1947 to '49.  
Virtually all Sonnar - Krasnogorsk lenses are of Zeiss origin.



**K500 - Z.K 2/5cm 1948**  
# 004395. (coated) on FED-ZORKI 1948. Copy of, or relabeled Zeiss - Sonnar in 39mm screwmount, collapsible. Poor quality aluminum mount. (The rangefinder cam of the Zorki sometimes prevents the lens from being collapsed.)



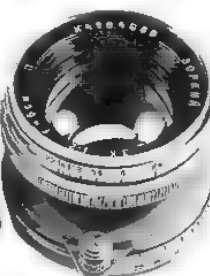
**K510 - Z.K 2/5cm 1948**  
# 003714. (coated) on KIEV 1947 to '49. 1948. Aluminum and bronze mount, with "ears" on diaphragm ring (like on K600). (see also p. 210.)



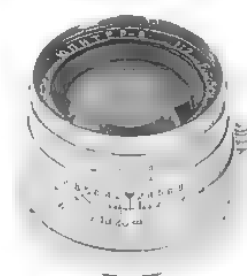
**K520 - Z.K 2/5cm ZORKI**  
# 49 00268. (coated) on Kiev 49. identical to the K510 (see also p. 210.)



**K535 - Z.K 2/5cm ZORKI**  
# 49 00 101 "RIGID"  
on ZORKI 1a



**K530 - Z.K 2/5cm ZORKI**  
# 49 04080 "collapsible"  
on ZORKI 1a  
(p. 351 - LEICA COPIES - H.P.R.) (22)



**K550 - JUPITER-8/5cm**  
# 55 15745 Chromed aluminum ( )  
Exact copy of the Carl Zeiss Jena rigid Sonnar in screwmount. Successor of the Sonnar-Krasnogorsk produced from 1950 to 1992.



**K560 - JUPITER-8 2/5cm**  
# 62 15738 - 45° barrel in satin chromed aluminum. Exact focal length: 52 mm. No focusing tab.  
**A160** - Starting in 1955 lens is made in Kiev in Kiev bayonet mount.



**K570 - JUPITER-8 2/50**  
c. 1965 to 1970 - chromed aluminum.  
**K572 - JUPITER-8 2/50**  
c. 1976 to 1992 - # 76 64037  
black anodized finish



**K575 - JUPITER-8-1 2/50**  
c. 1990's. black anodized finish.



**K460 - INDUSTRIAR-57 3.5/50mm**  
c. 1955 - prototype # 0001  
Photographed at KMZ works.  
This lens apparently never entered production.



**K480 - INDUSTRIAR 61 L 2.8/5cm**  
aluminum mount  
(p. 366 - LEICA COPIES - H.P.R.)  
design close to 3.5/5cm Industar-57 (K460)  
(See also I-61L from FED - p. 109).



**K600 - Z\_K 1.5/5cm 1948**  
1948 to 1950 - (coated) on FED-ZORKI  
**K605 - Z\_K 1.5/5cm**  
in KIEV internal bayonet mount



**K610 - Z\_K 1.5/5cm ZORKI**  
# 50 00223 (coated) 1948 to 1950  
still with "ears" on diaphragm ring  
**K615 - Z\_K 1.5/5cm ZORKI**  
in KIEV internal bayonet mount



**K620 - JUPITER-3 1.5/5cm**  
# 5604(4). From 1951 to c. 1956 in screwmount  
for Zorki or in KIEV internal bayonet mount.  
Starting in 1955 lens is made in Minsk and  
Zagorsk in screwmount.  
**K623** - anodized black finish.  
**K625** - in KIEV internal bayonet mount

**K630 - ORCHID-3 1.5/5cm**  
1955

Prototype of the successor to the  
Jupiter-3; never produced

**K590 - MERCURY 2/50mm**  
c1957-1958

Lens designated for the Kometa (see  
p.138)

**K595 - VEGA-1 2.8/50mm**  
c1960

on Droog-2 (see p.140)



**K490 - JUPITER-17 2/50mm**  
c1960  
Preseries. Less expensive to produce than  
the Jupiter-8, the Jupiter-17 was destined  
to be used on mass-market cameras but  
was never mass produced



**K650 - SPUTNIK-4 4.5/20mm**  
c1959 - 92° (Russian version of the  
Zeiss Biogon) Never produced.  
**K655 - SPUTNIK-4 4.5/21mm**  
Announced in KIEV bayonet mount,  
Never produced.



**K660 - RUSSAR MR-2 5.6/20mm**  
#03205 From c. 1958 to 1992 - 95° field  
of view.  
**K665** : The #00011 was on the  
KOMETA in 1958 at World's Fair in  
Brussels.



**K670 - RUSSAR MR-2 5.6/20mm**  
identical to the K660 in black lacquer.  
improved multi-coating  
**K671** - Announced for the KIEV IV  
**K675** - Identical to the K670, but  
made c. 1992-93



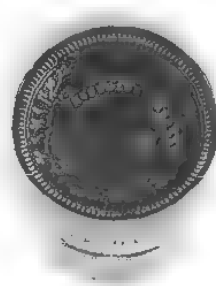
**K679 - VI-20 (BI 20)**  
Finder for 20mm lens 58°30'x79° (ver-  
tical x horizontal) Parallax correction  
Dimensions: 37x40x30mm  
**K729** - accessory finder VI 35  
35°x52° Dimensions 37x32x37mm



**K680 - ORION-15 6/28mm**  
№ 6100875 in screwmount  
A few thousand per year produced  
from 1960 to 1964 by KMZ, then by  
Zagorsk. (144)



**K700 - B\_K 2.8/3.5cm 1948**  
For FED-ZORKI  
**K725 - B\_K 2.8/3.5cm 1948**  
# 00195 (coated) Biogon Krasnogorsk.  
1948 on Kiev 48. Copy of, or relabeled Zeiss  
Biogon, in Kiev external bayonet mount.  
Aluminum mount, bronze barrel



**K710 - B\_K 2.8/3.5cm ZORKI**  
# 5000195 - (coated) Biogon  
Krasnogorsk. 1950-on ZORKI in  
screwmount Aluminum mount  
**K715 - B\_K 2.8/3.5cm ZORKI**  
in Kiev external bayonet mount



**K720 - JUPITER-12 2.8/3.5cm**  
#5200762, on ZORKI (KMZ logo)  
from c. 1950 to c. 1952. Shiny alu-  
minium mount, sometimes varnished.  
Variants: Cyrillic or Roman inscrip-  
tions. Sometimes a tightening ring  
around the rear element.



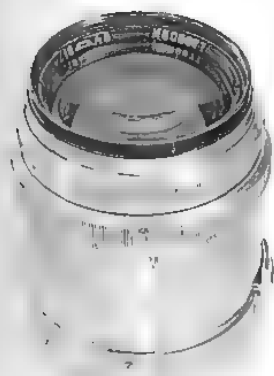
**K722 - JUPITER-12 2.8/3.5cm**  
#5201411 on ZORKI (KMZ logo)  
from c. 1952 to c. 1960.  
Modified diaphragm setting ring.



**K722 - JUPITER-12 2.8/3.5cm**  
#5609905, on ZORKI (KMZ logo)  
from c. 1952 to the end of the 1960's  
Also produced by LZOS

**K726 - JUPITER 12 2.8/3.5cm**  
identical to the K722 but black lacque-  
red finish  
c. 1975  
Produced by LZOS

**K725 - JUPITER 12 M 2.8/3.5cm**  
From the late 1960's to the 1980's,  
black lacquered finish, intended for  
ZORKI 4K



**K750 - ZK 2/8.5cm 1948**  
1948 - 39mm screw mount

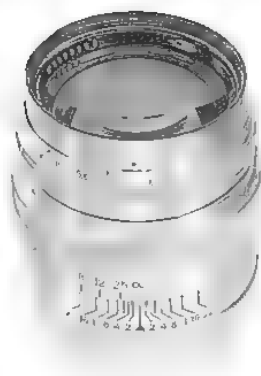
**K755 - ZK 2/8.5cm 19.48**  
# 000077 (coated) Sonnar Krasnogorsk  
28°5' - 335 gr  
1948, on KIEV 48. Zeiss Sonnar  
imported as reparations. The bayonet  
is engraved "Germany".

**K760 - ZK 2/8.5cm ZORKI**



**K760 - JUPITER-9 2/8.5cm**  
# 510072  
One of the first JUPITER-9 completely  
produced by KMZ.  
Experimental lens: the focusing ring is  
calibrated in millimeters.

*Document KMZ Museum.*

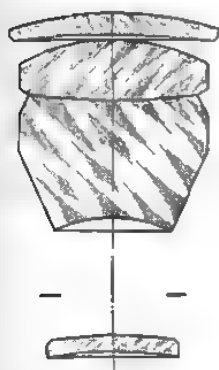


**K761 - JUPITER-9 2/85mm**  
with KMZ logo  
# 5603866 (coated) Beginning in 1951  
on ZORKI, FED, LENINGRAD  
Several finish variations.  
*variants:*  
**K765** - KIEV mount  
**K766** - shortened mount for ZENIT  
reflex (around 1958)  
Later produced by ARSENAL and  
ZAGORSK in KIEV mount.



**K767 - JUPITER-9 2/85mm KMZ**  
black anodized version, around 1970  
for ZORKI 4K  
**K768** - KIEV mount

**K1820 - JUPITER-9 2/85mm KMZ**  
Zenit reflex mount (see p.168)

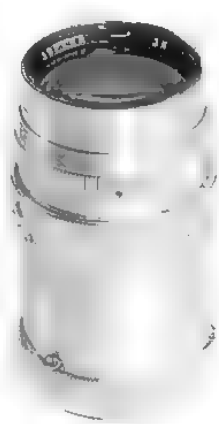


Optical cross section of the 4/13.5  
Sonnar Krasnogorsk



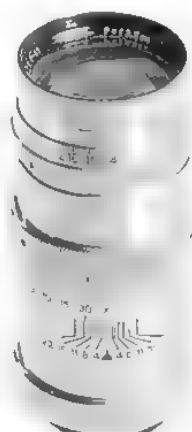
**K800 - ZK 4/13.5cm 19.48**  
# 000022 (coated) Sonnar Krasnogorsk  
1948. For FED-ZORKI. (RF coupled)

**K805** - Exists in KIEV mount.  
Aluminum.

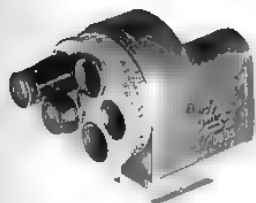


**K810 - ZK 4/13.5cm ZORKI**  
identical to the K770 but with ZORKI  
logo instead of KMZ

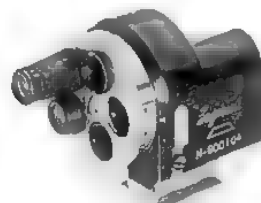
**K815 - ZK 4/13.5cm ZORKI**  
c1950 - KIEV mount



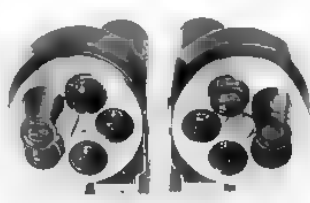
**K820 - JUPITER-11 4/13.5cm**  
c. 1950. For ZORKI # 5605047.  
4 elements - 18°5' 360 g. (coated)  
Produced by KMZ from 1950 to 1963.  
Absolutely identical to the K810.  
**K825** - Exists in KIEV mount.  
**A240** - later produced by ARSENAL  
**Kz35** - Produced by KOMZ (p. 248)



**K900 - universal finder**  
N° 000095  
c. 1948. For KIEV-48

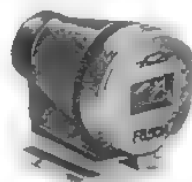


**K910 - universal finder**  
N° 000104  
c. 1950. For KIEV II  
Logo KMZ 1st version.



**K915 - universal finder for KIEV.**  
"classic" KMZ logo (left)

**K920 - universal finder c1951.**  
For ZORKI-3 the finder is reversed for  
better access to the speed control knob



**K769 -**  
**Auxiliary finder VI-85 (BH85)**  
14°40'x21°  
Dimensions: 31x27x22mm  
Produced in bakelite starting in the '70's  
by Rostov



LEICA COPIES	EVOLUTION : SYNC.	EVOLUTION : DIE CAST BODY- REMOVABLE BACK	EVOLUTION : WIND LEVER	EVOLUTION : TRIGGER WIND	LEAF SHUTTER ... 1/2 FORMAT
FINDER - RANGEFINDER SEPARATE, 38MM		COMBINED FINDER - RANGEFINDER, 39MM	COMBINED VF/RF 67MM		
		SLOW SPEEDS			

1941  
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 1992

birth of "KMZ": ... FEBRUARY 1941

30 cm TAİR lens for Foto Sniper FS 2 "KMZ"

FED-KMZ  
 FED-ZORK

ZORKI Ia  
 ZORKI Ib  
 ZORKI Ic

ZORKI Id

ZORKI 2

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Production  
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156 229

2 343 465

= 521 500

= 23 750

400 089

50th anniversary of KMZ

# ZENIT FAMILY TREE 1951/1980

Ø39MM SCR. MNT.

Ø42MM SCR. MNT.

BAYONET

LEAF SHUTTER

METAL FOCAL SHUT.

LEICA TYPE  
BACK

HINGED BACK

LIGHT METER

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1992

birth of "KMZ": ... FEBRUARY 1941

30 cm TAIR lens for Foto Sniper FS 2 "KMZ"

Prototype

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E  
N  
I  
T

3

KRISTALL

KRISTALL  
2

3M

E  
39

Z.66

B

E  
42

with instant return

BM

EM

15  
et  
16

TTL

PHOTO  
SNIPER  
FS3  
(65 - 83)

FS12  
(83-90...)  
FS4  
(1981)  
FS4M  
...

ET

10

11

12  
-  
12  
XP  
-  
12  
CD

PHOTO  
SNIPER  
continued

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Leaf shutter

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122

≈ 353,750

≈ 2,072,000

≈ 3,977,500

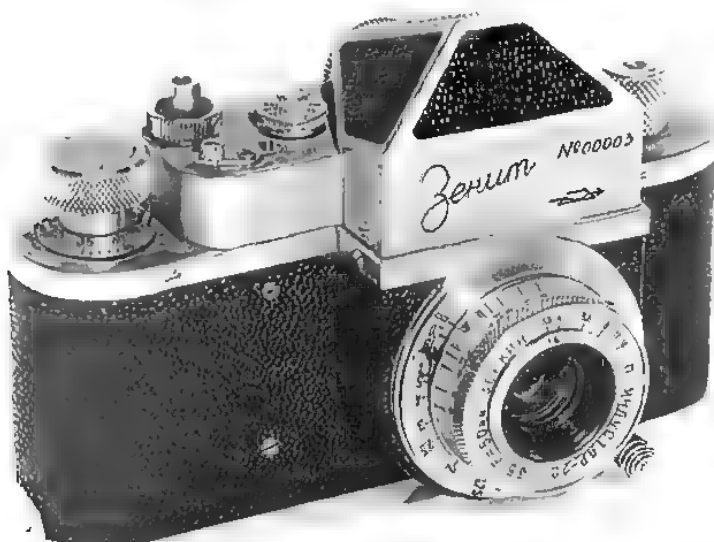
EM

50th anniversary of K.M.Z

Around 4,230,000

Around 400,000

With the ZORKI, KMZ revealed to the world, after 10 years of existence, the renaissance of the Soviet photographic industry.  
With the ZENIT, the firm clearly announced its intention to become the leading producer of quality photographic material in the USSR



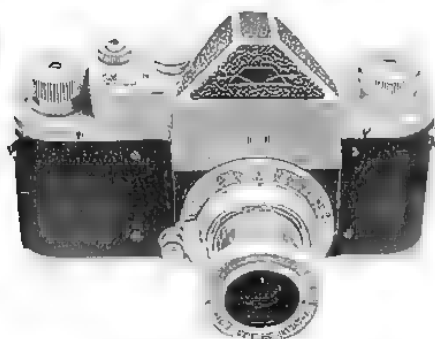
## **ZENIT c.1950-51 "ZENITH"**

**K1000**

**Prototype № 00003 6 units produced.**

The idea of including a reflex mechanism in a body originally designed as a rangefinder is more than original. With the exception of the Swiss ALPA reflex in 1942, the major players in the photo industry will wait for the end of the fifties before proposing cameras following this concept. The dimensions of the body are maintained, with the exception of the prism and the mirror chamber, of course.

The lens on this prototype is an Industar-22 'Zorki' shortened by the factory, (K350) from 1951.



**K1005 - ZENIT Prototype, KMZ Museum**

## **ZENIT Prototype 1951-52**

**KMZ Museum**

**K1005**

Subsequent version of the prototype; the engraving on the front is similar to the preseries version. The Industar-22 mistakenly shown on this body in the KMZ museum, is actually a Zorki unit.

In the next photo, the preproduction ZENIT is shown with the proper Industar-22 (K390) The body is not yet in its final form, but the finish is progressing.

## **ZENIT Preseries with "block logo" 1952-53**

**K1010**

**# 530386 - Only a few hundred units made.**

First full frame 35mm single lens reflex camera produced in the USSR after the war. Body derived from the ZORKI-1c. Several elements, such as the shutter housing and the body chassis are in cast aluminum

Same decorative molding in black paint.

Same controls, with counter included in the advance knob

Reflex viewer with erecting "prism", actually consisting of cemented mirrors.

New top plate design, with KMZ logo

Full area simple groundglass.

Leica/Zorki focal plane shutter

Speeds: B; 1/25 - 1/500s.

Industar-22 3.5/50mm lens, with focusing tab (K390).

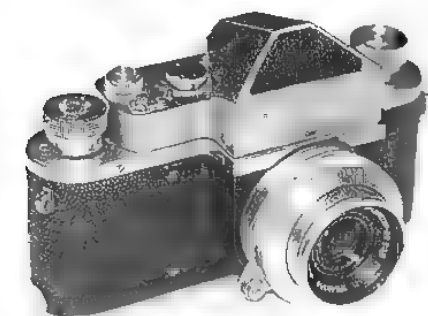
On the model shown, the lens (K420) is a later version (1955); it is the K440 lens without the extension tubes. (see p. 142)

Strap lugs

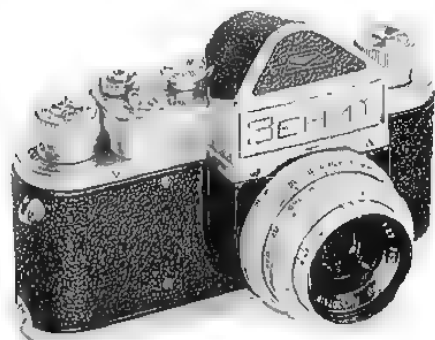
Dimensions of the ZENIT: - 136x50x90mm without lens

- 136x75x90mm with lens

Dimensions of the ZORKI, with lens extended: 134x62x68mm.



**K1005 - ZENIT early production - Doc. M. Kamyf**



**K1010 - ZENIT, Forerunner of Zenit .**

## **ZENIT Prototype with meter c.1955-60 ?**

**K1015**

Body based on ZENIT K1005, without rim, but with raised top plate like the ZENIT-3, incorporating a selenium meter like that of the "Kometa". The Industar-22 lens is a model K360.

## ZENIT FIRST GÉNÉRATION

Three principal generations of the Zenit family will evolve successively over four decades of production, with very occasionally, a fruitless development (Zenit-7, Zenit-D, Zenit-16). In contrast to other camera families, their presentation here follows according to chronological order within the family.

**ZENIT 1953 - 1956 (39,019 units) K1020**

Generally similar to the "block Logo" Zenit, this is the mass produced version.

Zenit is engraved in cursive Cyrillic characters on the front panel of the prism housing, as on the prototype. Small stabilizing foot under the rounded lens-mount. Delivered with the Industar-22 reflex (K390).

**K1020 - ZENIT 1st production model**

Document P. H. Pont

**ZENIT S (ЗЕНИТ-С) 1955 - 1961 (232,949 units) K1030**

"S" for synchronization.

identical to the ZENIT, but with synchronized shutter the ZENIT-S gets the same shutter as the ZORKI-2 (1954) and the new shutter speed knob with index mark in the center. Like the ZORKI-S (1955), sync delay can be adjusted up to 25 milliseconds.

As on the Zorki 2, the collar around the shutter release replaces the lever rewind clutch.

delivered with the Industar-22 3.5/50mm (K440).

Variants

K1030 - ZENIT-S production model

K1031 - during the production run, the little balance foot (under the lens-mount) is eliminated.

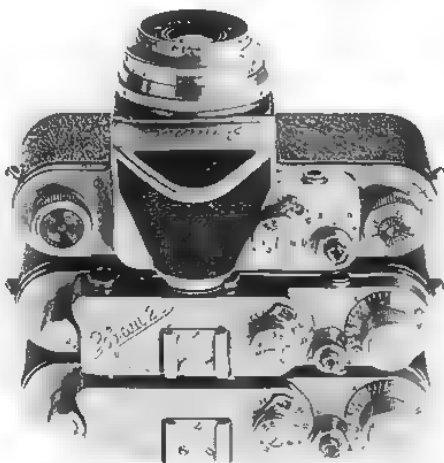
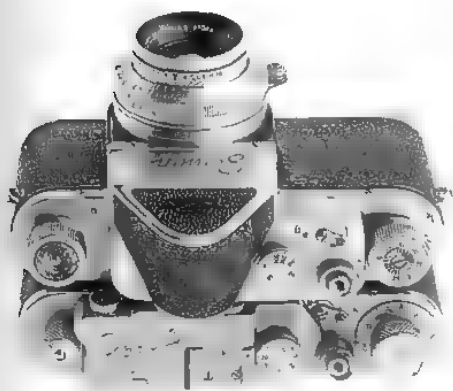
K1032 - ZENIT-S in Roman letters.

K1033 - ZENITH-C in Roman letters..

**K1030 - ZENIT-S production model****ZORKI and ZORKI-S, ZENIT and ZENIT-S.**

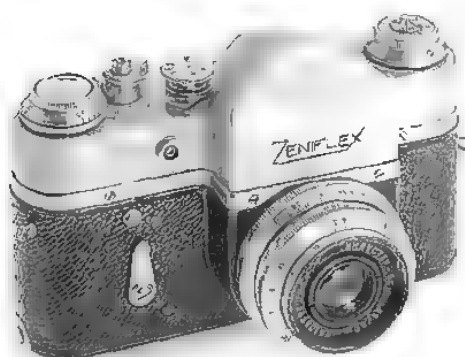
The evolution of the parallel models occurs jointly in the two camera families.

- Maximum usage of injection molded parts.
- New speed selector knob.
- Abandon of the rewind clutch lever
- Addition of flash Sync, with sync delay selector.





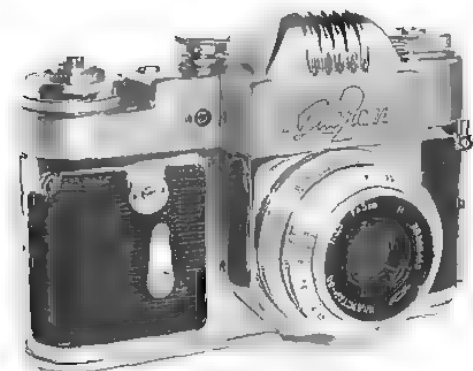
Two styles of logo on Zenit 3



K1045 - Zeniflex. Document D. Scheiba



K1050 - Kristall Document J. McKeown



K1055 - Kristall-2 With instant-return mirror ....  
Document M P Mladek

## ZENIT-3 1960 - 1962 (81,776 units)

K1040

Successor of the ZENIT-S, the ZENIT-3 was probably designed by N. Marienkov.

The parallel evolution of the Zenit with the Zorki is characterized by a new stamped top panel, redesigned to fully enclose the camera top.

lever advance with frame counter; symmetrically, pop-up rewind knob with film-speed memo. Zorki-6 type self timer.

Delivered with Industar-50 3.5/50mm (K440).

Variants:

- Several types of engravings in Cyrillic characters
- Several types of engravings in Roman letters

K1044 - "No Name", produced for a distributor.

## ZENIFLEX c.1962 N°62207244

K1045

Export model of the ZENIT-3 for a "European distributor."

## ZENIT-3 with lens turret

K1046

A ZENIT-3 with a rotating turret attached to the body, allowing the use of 3 lenses, as on the Rectaflex Rotor (58) (illustrated in the summer '88 issue of the magazine "France URSS").

## KRISTALL "CRYSTAL" 1961 and 1962

K1050

Conceived by N. Marienkov (65,433 units)

Conceived and produced at the same time as the ZENIT-3, the Crystal incorporates several important evolutionary features:

- Advance lever with integrated shutter release, shared with the ZORKI-5  
This soon becomes the standard system used on the ZENIT-3M, ZENIT-E, ZENIT 66, ZENIT-B.

- Adjustable sync delay feature replaced by a switch "X"-"M".

- Rewind clutch lever replaced by a pushbutton

- Large rewind knob with film-speed memo, as used on the ZORKI-5.

- Hinged back, as used on the ZORKI-6.

- An attempt to use a cast metal top plate to lower production cost but also to improve protection of the prism. This panel is finished in a grey hammertone paint, giving to the Crystal a disconcerting "tool-like" appearance.  
delivered with the Industar-50 3.5/50mm

Variants:

K1050 - grey-green hammertone paint, black artificial leather covering

K1051 - grey hammertone paint, light grey artificial leather covering

K1052 - grey hammertone paint (top panel), black paint (lower body) black artificial leather covering

## KRISTALL-2 "CRYSTAL-2" c1960 (!)

K1055

Prototype (top panel in chromed brass, body in chromed aluminum), a development of the Crystal with instant-return mirror.

## KRISTALL-2 "CRYSTAL-2" c1960 (!)

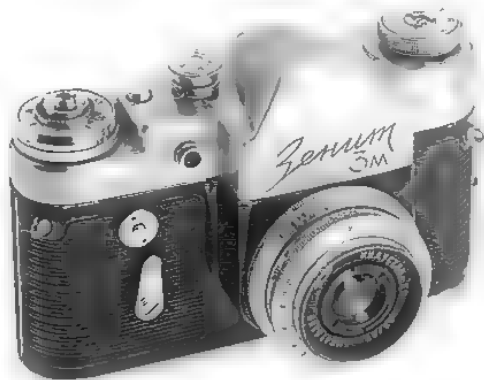
K1057

Another prototype Kristall-2 has surfaced, with selenium meter as used on the future Zenit-E. Grey-green hammertone paint; black artificial leather covering, Kristall-2 logo engraved under the meter cell.

**ZENIT-3M 1962 - 1970 (781,678 ex.)** **K1060**  
 Conceived by N. Marienkov. "M" pour Marienkov.

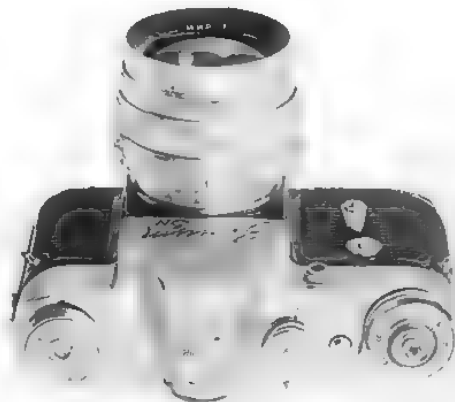
Given its relative lack of success, and the severe criticisms leveled at the Crystal and its trucklike esthetics, the KMZ engineers rework the stamped top element, and give it a matte chrome finish. Apart from this development, the camera is identical to the Crystal.  
 Delivered with Industar-50 3.5/50mm, Helios-44 and 44-2, in polished aluminum.  
 Dimensions: 138x90x72mm.

- Variants:**
- K1061 - blue covering.
  - K1062 - "ZENIT 3M" engraved in Roman letters
  - K1063 - engraved "REVUEFLEX" (Foto-Quelle, Germany 1967).
  - K1064 - engraved "PHOKINA" (Fox-France)
  - K1065 - commemorative engravings.
  - K1066 - "ZENIT" engraved in Roman letters
  - K1067 - engraved "GLOBAL" c. 1970.
  - K1068 - without engraving (destined to a distributor).



Zenit 3M

**Commemorative engraving 1917 - 1967** **K1065**  
 Engraving symbolizing 50 years of communism, with the cruiser Aurora, the red star on the Kremlin, and a rocket.



**Waterproof housing KPF-1 c.1960 - 65**  
**for KRISTALL and ZENIT 3M. (N°65191)**

**K2530**

To replace the "Krab" waterproof housing from GOMZ, initially to be used with LENINGRAD, FED and ZORKI, and to offer the advantages of a SLR by using a ZENIT 3M, KMZ produces a simplified version of the housing developed for the START.  
 Reflex or scale viewing, with parallax compensation fixed at 3m.  
 Maximum depth : 40m. (!)  
 Housing equipped with two geared adjustment wheels corresponding to the settings of diaphragm and focus on the HELIOS-44 and MIR-1.  
 External levers controlling cocking and shutter release.  
 Delivered with nylon strap and tools.  
 The revised housing is offered for sale in the West in 1967 for use with the ZENIT-E and B.  
 Dimensions: 32x18x15cm.  
 Weight: 2.4kg.  
**Accessory:**  
 Adaptor for bulb flash.

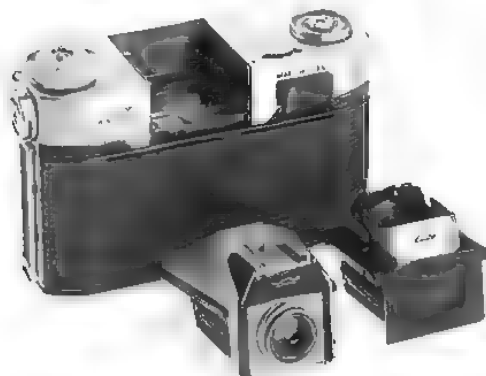




Zenit 11 Document Presse KMZ



K1112 - Zenit 4



Interchangeable viewfinders of Zenit 4-5-6 family.



K1122 - Zenit 5

Starting with the launch in 1953 of the Zeiss Ikon Contaflex, followed in 1959 by the Kodak Retina and the Voigtlander Bessamatic, the vogue of SLR's with central shutters affects as well the Soviet photo industry. So in the sixties in Krasnogorsk, the engineers undertake the production of a range of "international class" full frame leaf shutter 35mm SLR cameras with interchangeable lenses. These SLR's, while angular, imposing, and heavy are well made and finished.

## **ZENIT-11 1964 (Only a few units) K1100**

Destined for the domestic market, the ZENIT-11 is meterless. Although introduced in the Soviet press, the camera is never produced.

## **ZENIT-4 1964 - 1968 (19,740 units) K1112**

Full frame 35mm central shutter SLR, with interchangeable lenses and finders. Cast metal chassis.

Selenium meter on camera front, above the lens.

Film speed range: 16 - 500 GOST (20 - 650 ASA on export model.)

Diaphragm setting, control knob on top of the body moves a cursor visible in the finder into coincidence with a pointer set by the actual diaphragm setting. (Bessamatic system.)

Central shutter. speeds: B; 1s - 1/500s. fully synched.

Delivered with VEGA-3 2.8/50mm, engraved in Cyrillic or in Roman letters.

Bayonet mount similar to that of the Voigtlander Bessamatic.

Supplied with two interchangeable finders (same as the Start): a pentaprism and a waist level finder.

The groundglass with split image focusing aid and the meter needle are protected by an optical cover glass.

Wind lever faired into top plate

Vertical rewind lever moved to side of body Hinged back

**Variants:**

K1110 - ZENIT-4, white diaphragm and speed scales.

K1111 - ZENIT-4, black diaphragm and speed scales, Cyrillic markings.

K1112 - ZENIT-4, black diaphragm and speed scales, Roman markings.

**Accessory:**

Removable accessory shoe

## **ZENIT-5 1964 - 1968 (11,616 ex.) K1122**

Identical to the ZENIT-4 but with electric motorized cocking and film advance. The ZENIT-5 is the first 35mm SLR with built-in motor.

The motor and battery pack are integrated into the base of the camera. the motor is turned on by an "ON/OFF" switch. A backup cocking knob is located on the top plate.

Delivered with VEGA-3 2.8/50mm or Rubin-1ts 2.8/37 ~ 80mm (version with tripod socket - K981) lenses, waist level finder and battery charger.

**Variants**

K1120 - K1121 - K1122 - as ZENIT-4



Although without a doubt the best known member of the central-shutter ZENIT family in the West - the result of it's having been the most widely exported - the ZENIT-6, with its famous zoom RUBIN, enjoyed the shortest production run of the group.

## ZENIT-6 1964 - 1968 (8,930 units)

**K1132**

Identical to the ZENIT-4, the ZENIT-6 is equipped from the outset with the varifocal lens RUBIN-1ts 2.8/37-80mm, copy of the Voigtländer Zoomar 36~82mm.

Also delivered with the Vega-3 and waist-level finder in a tall, leather outfit case also of German inspiration.

**Variants:**

K1130 - ZENIT-6, white diaphragm and speed scales.

K1131 - ZENIT-6, black diaphragm and speed scales, Cyrillic markings.

K1132 - ZENIT-6, black diaphragm and speed scales, Roman markings.



K1132 - Zenit 6

## Lenses used in common on ZENIT-11, ZENIT-4, ZENIT-5, ZENIT-6<sup>(59)</sup>



MIR-1ts

### K1140 - MIR-1ts 2.8/37mm

62° - 6 elements, 270g.

Different formula from the MIR-1 for Zenit



Tair 38 ts

### K1150 - VEGA-3 2.8/52mm

45° - 5 elements

**Variants**

K1150 - alum. finish, see K1112

K1151 - black finish, see K1122

### K1155 - HELIOS-65 2/50mm

45° never mass produced



Jup.25 ts

### K1160 - JUPITER 25ts (25II)

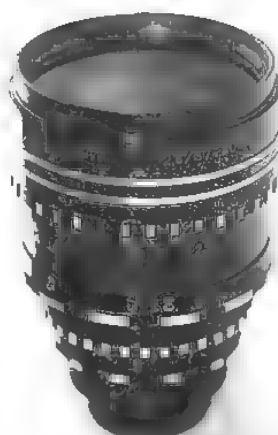
2.8/85 mm - 28°

5 elements - 325 g.



T 200 ts

Documents M. Kostjukovski



### K1180 - RUBIN (РУБИН)

ZOOM 2.8/37~80 - # 003

30; 60° 14 lentilles - 850 gr.

prototype Doc. M. Kostjukovski



Rubin-1ts

### K1181 - RUBIN-1ts (1II)

ZOOM 2.8/37~80 -

with tripod socket and strap lugs, for ZENIT-5

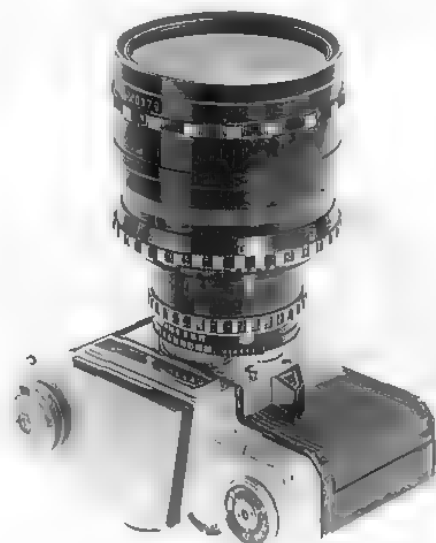
### K1182

RUBIN-1ts (1II)

ZOOM 2.8/37~80

For ZENIT-4 and

ZENIT-6



Zenit 6 equipped  
with Rubin 37 ~ 80,  
version K1182



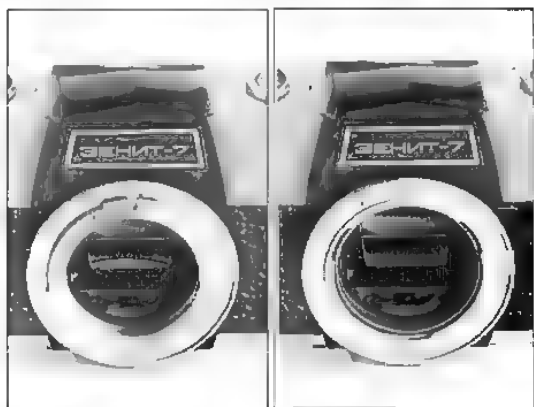
K1250 - Zenit-7 Document M P Mladek



K1252 - Zenit-7 Document A. Kasuya



K1255 - Zenit-7 Document D. Schöna.



Triple lens mount with "two" bayonets ...

In the great family of the ZENIT cameras the little-made ZENIT-7 is a rarity. Once its shutter problems were resolved, the ZENIT-7, with its complicated triple lensmount never received the favor of the public. However the -8, like the D and the -16, bear witness to the constant research taking place in the KMZ design department (Modern shape, waist-level finder in plastic from 1968...)

But above all, the ZENIT-7 and D are the first cameras from KMZ with automatic diaphragm mechanisms.

And also from these families are born the new ZENIT-19 and AUTOMAT families.

#### **ZENIT-7 1968 - 1969 Préséries**

**K1250**

##### **1st version (fewer than 200 units)**

Similar to the production version, but with a self-timer.

The ZENIT logo is inscribed on the top housing, the number "7" on the pentaprism.

Variants:

**K1250** - Prototype or preseries. Metal prism housing in (grey) paint and ZENIT engraving in Roman letters, showing a desire for export.

Delivered with black and grey HELIOS 44-1 lens, with meter coupling fork

**K1252** - Preseries. black plastic prism housing

**K1253** - Preseries. no self timer, Helios 44-7 lens.

#### **ZENIT-7 1969 - 1971**

**K1255**

##### **2nd version (fewer than 3000 units)**

Full frame 35mm SLR. Prism protected by a molded black plastic housing. "camera cocked" reminder in the finder.

Full-frame groundglass with micropism central area.

Focal plane shutter. Speeds: B; 1s - 1/1000s. X-synch at 1/125s.

Flat shutter speed knob with coupling pin (!)

Shutter release on body front. instant return mirror.

Retractable rewind knob. Automatic diaphragm mechanism

Triple lens mount:

1/ external breech mount, like PRAKTINA or CANON Reflex mount.

2/ 42mm screw mount inside the breechmount, allowing the -7 to use universal thread lenses.

3/ internal bayonet mount, foreseen for a series of unique lenses, never produced.

Delivered with HELIOS-44-7 2/58mm, automatic and manual, with a 42mm screwmount which could not be adapted on other bodies of the family. the lens is equipped with a coupling fork on the diaphragm ring, Nikon-F style (meter?)

A very ambitious project for the time. But according to some KMZ engineers, studies showed that the ZENIT-7 would be too expensive to produce, and the project was abandoned.

#### **ZENIT-9 c.1970 Prototype**

**K1260**

Identical to the ZENIT-7, but planned with an electronic shutter derived from the one on the ZENIT-AUTOMAT "D".

Never produced - guess why?

## ZENIT-AUTOMAT-D

### ZENIT-D

1967-1970

Several hundred units made, only 63 completely finished, as recorded on the KMZ production ledger.

Created by: Derjavine

**K1270**

Developed from the ZENIT-7 body, the ZENIT-AUTOMAT-D includes in its name (like the ZENIT-3M) the initial of its creator, the conceptual engineer Derjavin. Probably also the father of the ZENIT-7, Derjavin signs with his "D" one of the most creative Russian cameras. Its rigorous esthetic and rectilinear architectural forms are easily the equal of the slippery, profiled forms of today's cameras. It is reminiscent of the Foca Sport from France, the Pentina from Germany, or the Canonflex from Japan during the sixties.

**Automatic full frame 35mm SLR with electronic shutter.**

Speed disk identical to the one of the ZENIT-7 but on the rear of the camera, on the left hand side, away from the advance lever. Speeds: T, B; 1/2 - 1/1000s.

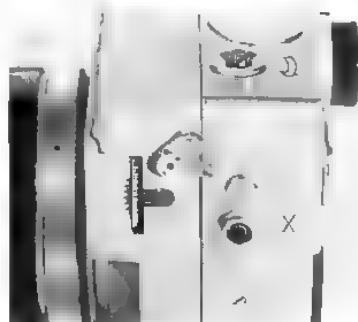
light grey lacquer finish, with rubberized cloth covering giving an excellent hand grip. hinged back.

Breach mount like that of the ZENIT-7, but the clamping ring can no longer be removed. delivered with HELIOS-44-D 2/58mm, a complete range of lenses, from the MIR to the TAI'R planned; some of them were actually made. (Good Hunting!).

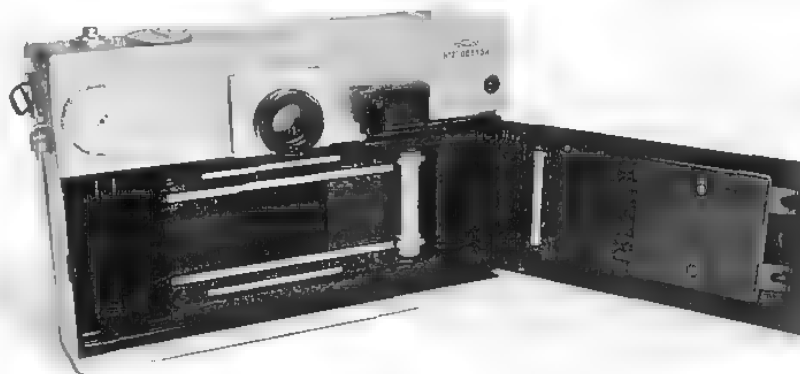
#### Variants:

K1271: black paint instead of grey.

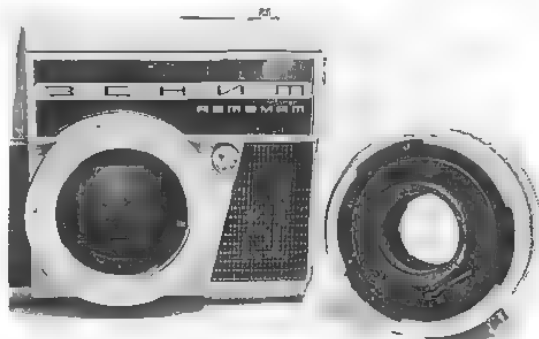
K1272: dark blue-grey paint instead of grey.



- left side of the camera: X-synch, strap lug (identical to K1280).
- on the camera top: battery hatch, rewind clutch selector.
- on the rear: shutter speed selector, high eye-point viewer for eyeglass wearers, advance lever like the one on the Zenit-7.



Zenit-D # 70000334, Dos ouvert. Doc KMZ



Baïonnette externe du Zenit D. Doc KMZ

## ZENIT SECOND GÉNÉRATION



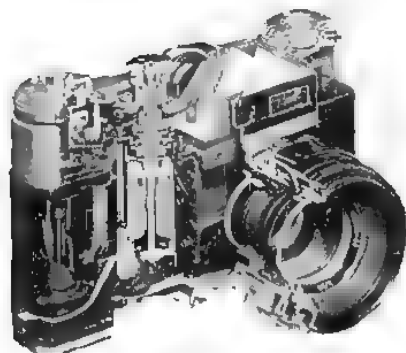
K1201 - Zenit E



K1200 - Zenit E



K1219 - Zenit E, with plaque Zenit-E to Kalimar



Zenit E "Cutaway"

Universally known on the amateur market, the production numbers of the ZENIT-E rank it among the most copiously produced single camera models in the world. With a total production of 3,334,540 units between 1965 and 1981 (plus one in 1962) the ZENIT-E surely deserves a place in the great ledger of such records.

**ZENIT-E 1965 - 1968 (around 50,000 units) K1200**

Full frame 35mm SLR with uncoupled selenium meter  
film speeds 20 - 650 ASA. Groundglass without focusing aid  
Focal plane shut. speeds: B; 1/30-1/500s. Non-instant return mirror.  
Redesigned advance lever, with central shutter release inherited from the ZORKI-5. Self timer. removable accessory shoe can be slipped on viewer eyepiece.  
delivered for 15 years with Industar 50-2, or Helios-44.  
- 39x1mm screwmount (identical to that of the Zenit. [60 ])  
- 42x1mm screwmount (identical to that of the Praktica c 1968)  
Dimensions: 134x90x50 mm.

**Variants:**

K1200 - engraved ZENIT-E in Cyrillic characters. chrome or black body.  
K1201 - engraved ZENIT-E in Roman letters. chrome or black body. (c. 1967).

**ZENIT-E 1967 - 1982 (more than 3 millions units.) K1210**

Identical to the preceding model, but starting late 1967, delivered with instant return mirror.

Delivered with Industar 50-2, Helios 44 or Helios 44-2.

- 39x1mm screwmount

- 42x1mm screwmount

Manufactured for 15 years, the ZENIT-E undergoes numerous minor modifications: the form of the advance lever, of the accessory shoe, and the positions of the KMZ logo and the serial number.

**Variants:**

K1210 - Engraved ZENIT-E in Cyrillic characters. chrome or black body.

K1211 - Engraved ZENIT-E in Roman letters. chrome or black body.

K1212 - Commemorative engraving for the "25th Congress of the P.C.U.S.". (61)

K1213 - Engraving MOSKVA 80 (1980 Moscow Olympic games)

K1214 - 1980 Olympic games (starting in 1977!) engraving on prism or right side of body.

K1215 - ZENIT-E "No Name" in shiny chrome for display window. (61)

K1216 - Engraved REVUEFLEX-E. (Foto-Quelle, Germany c. 1967)

K1217 - Engraved PHOKINA.

K1218 - Engraved PHOKINA XE. (Fox-France).

K1219 - Engraved KALIMAR SR 200 (USA, c. 1977).

(sometimes with a ZENIT-E plaque next to the KALIMAR one).

K1220 - Engraved KALIMAR SR-300 (USA, c. 1977).

K1221 - Engraved SPIRAFLEX (USA).

K1222 - Engraved MEPROZENIT-E (61b) with 2.8/55 Kominar (Nitto Opt., Japan)

K1224 - Engraved MEPROZENIT-80.

K1225 - Engraved DIRAMIC RF100 (black) with H-44 (Direct Film-Canada c. 1979).

K1226 - Engraved CAMBRON SE (Cambridge Camera USA-1977).

- Several body coverings known. Lenses offered: see p.168

The ZENIT-E is also produced from 1973 to 1986 by the VILIEKA factory in Minsk, with a reputation for mediocrity (see BelOMO chapter).

# ZENIT-66 ZENIT-V

# ЗЕНИТ-66 ЗЕНИТ В

## ZENIT-66 c.1965 - 1966 **Prototype** **K1230**

At first glance, the ZENIT-66 closely resembles the ZENIT-E. However, it has a body which is 8mm narrower: 126 instead of 134 mm.

The ZENIT-66 is not only smaller, but is especially significant as the first Soviet 35mm SLR to have an instant return mirror. (see also p.150)

The ZENIT-66 is the missing link between the ZENIT-3 and the ZENIT-E (or B), and represents what the new generation of ZENIT should have been from the outset: an instant return mirror SLR.

The characteristic pentaprism housing and narrow body of the ZENIT-66 could not accept a meter.

Uniform focusing screen

The wind lever and release button are identical to those of the ZENIT-E, while the rewind clutch release button is that of the ZENIT-3M, under the body

The placement of the controls and the distances between them reveal a different shutter mechanism housing.

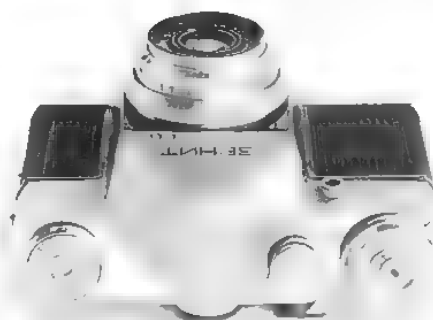
Focal plane shutter. speeds: B; 1/30 - 1/500s. X-sync.

Industar-50 3.5/50mm 39mm screwmount.

Dimensions: 126x45x88cm.



**K1230 - Zenit-66** Document J Daniel



## ZENIT-V 1968 - 1973 (889,000 units) + 1977 - 1978 (356 units)

## K1242

To maintain uniformity, the "B" in the "ZENIT-B" logo is never translated into Roman letters as a "V", even for the export models.

Production begins in 1967. This is the first mass-produced ZENIT equipped with an instant return mirror.

The successor of the ZENIT-66 and maybe of the CRYSTAL-2 (see p.150) the -B is built on the ZENIT E chassis, but without a meter.

Uniform focusing screen

Focal plane shutter. speeds: B; 1/30 - 1/500s. X-sync. Self Timer

delivered with Industar-50-2 3.5/50mm, Helios-44 or Helios-44-2 2/58mm

- 39mm screwmount

- 42mm screwmount, running change made during 1968.

**Variants:**

K1241 - engraved ZENIT-B in Cyrillic characters. chrome or black body.

K1242 - engraved ZENIT-B in Roman letters. chrome or black body.

K1243 - engraved REVUEFLEX-B c. 1969.

K1244 - engraved PHOKINA (FOX, France)

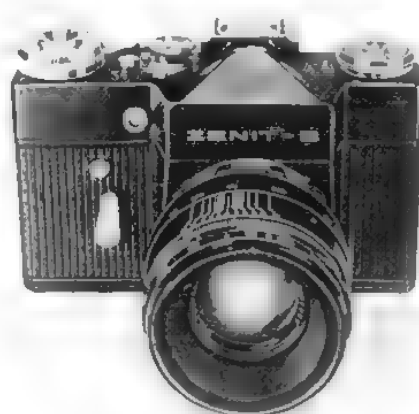
K1245 - engraved PRINZFLEX 500 c. 1973 (61).

K1246 - engraved CAMBRON-B (Cambridge Camera - unconfirmed)

K1247 - engraved GLOBAL (c. 1970)(61ter).

K1248 - engraved MEPROZENIT-PRO with 2.8/55 Granada (Japan, c. 1972)

- several body coverings known. Lenses offered: see p.167



**K1242 - Zenit-B** Document KMZ



**K1248 - MeproZenit** Document A. Kasuya.



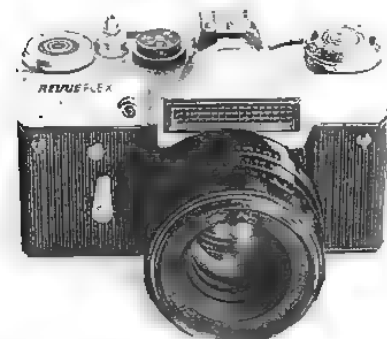
K1280 - Zenit BM prototype Doc KMZ.



K1282 - Zenit BM présérie. Doc A. Biry



K1291 - Zenit EM Doc KMZ



K1294 - Zenit EM Doc J. Daniel



K1302 - Zenit TTL noir, le grand classique Doc SLAVA

## **ZENIT-VM 1972 - 1973 (1,239 units)**

**K1280**

### **Prototype and Preseries.**

**K1282**

(VM or BM see ZENIT V) Based on the ZENIT-V, but with new controls: on the ZENIT VM, the shutter release takes the place of the rewind selector, while the diaphragm selection function is taken care of automatically. The lenses are therefore designated with an "M," as with the Helios-44M. These cameras are the precursors of a great new family of ZENIT: EM, TTL, ET, IO, 11, 12.

*Variants:* Details due to their status as preseries cameras:

- different engravings
- version with no strap lugs, then lugs placed on the corner of the body (see K1282), then on the body front.

## **ZENIT-EM 1972 - 1984 (979,139 ex.) + 1988 (130 ex.)**

**K1291**

Similarly to the ZENIT-E, the meter is not coupled  
*The ZENIT-EM is the first mass-produced SLR from Krasnogorsk with automatic diaphragm. (see p.152)*

focal plane shutter. Speeds: B; 1/30 - 1/500s X and M synch.

42mm screw mount, in black or chrome. delivered with Helios-44M 2/58mm

Presented here with the ERA-6M 1.5/50mm #000465.

variants.

K1290 - ZENIT-EM in Cyrillic characters

**K1291** - ZENIT-EM in Cyrillic characters with Olympic Rings, Moscow-80

Presented here with the ERA 6-M (K1710 p.167)

K1292 - ZENIT-EM in Roman letters.

K1293 - ZENIT-EM in Roman letters with Olympic Rings, Moscow-80

**K1294** - REVUEFLEX-EM c. 1975.

K1295 - COSMOREX-SE, chrome, with Auto-Cosmoron (KMZ) lens.

K1296 - COSMOREX-SE, black, with Auto-Cosmoron (KMZ) lens

## **ZENIT-TTL 1977 - 1985 (1,632,212 units)**

**K1300**

Initially called the *Electro Zenit* on the first models, then *ZENIT TTL*, this camera is, after the ZENIT-E, one of the most widely produced mass market cameras in the world.

Close to the ZENIT EM, but semi-automatic with a TTL CdS meter. Meter needle visible in the finder. (+o-)

Meter circuit switched on by touching the release button.

Focusing screen: Fresnel lens with central micropism area

Focal plane shutter, speeds: B; 1/30 - 1/500s. X-Synch. Hot shoe after 1980.

Non-rotating shutter speed selector dial, during advance or shutter release.

42mm screwmount. black or chrome finish. Delivered with Helios-44M.

*Variants:* (available in either black or chrome finish)

K1300/1 - Electro ZENIT or Electro Zenit -TTL (rare, fewer than 1000 units)

K1300/2 - ZENIT-TTL in Cyrillic characters (but "TTL" in Roman letters!)

K1301 - ZENIT-TTL in Cyrillic caricatures, "Moscow Olympic Games"

**K1302** - ZENIT-TTL in Roman letters

K1303 - ZENIT-TTL in Roman letters, "Moscow Olympic Games"

K1304 - Scientific version - chrome (p. 161)

K1305 - CAMBRON-TTL (Cambridge Camera - USA)

K1308 - Kit ZENIT-1 (1979 - 1983) 292 units. comprising a Zenit-TTL with three lenses: Mir-10A, Helios-40-2, Jupiter-21M; and filters, etc., in a fitted case.

*The ZENIT-TTL is also produced from 1977 to 1985 by BelOMO - VILIEKA in Minsk.*

### **ZENIT-ET 1981 - 1982 (61,069 units)**

**K1350**

Identical to the ZENIT-E, uncoupled meter, no diaphragm preselection, but with the non-rotating shutter speed selector dial as on the TTL.

Chrome, black or bronze finish; 42mm screwmount. Hot shoe.

Delivered with INDUSTAR-50-2 3.5/50mm or HELIOS-44-2

*Variants:*

K1350 - ZENIT-ET in Cyrillic caricatures as on the ZENIT EM

K1351 - ZENIT-ET in Roman letters as on the ZENIT 11

K1355 - Poor little economy version of the ZENIT and (Cyrillic logo) destined for the domestic market. Body in dark grey or black plastic, delivered with Helios 44M-7 Valdaï.

*The ZENIT-ET is also produced from 1985 to 1990 by BelOMO - VILIEKA in Minsk.*



K1350 - Zenit ET Document J.Daniel

### **ZENIT-10 1981 - 1982 (19,865 units)**

**K1360**

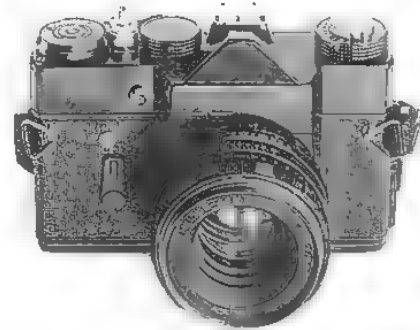
Like the ZENIT-ET, identical to the ZENIT-TTL, with an uncoupled meter, no diaphragm preselection, but non-rotating shutter speed selector dial as on the TTL. The ZENIT-ET and 10 seem to have been created to finish the stock of parts of the ZENIT-E or to satisfy the low-end market.

Delivered with the excellent INDUSTAR-50-2

*Variants:*

K1360 - uniform focusing screen.

K1361 - uniform focusing screen with central microprism spot.



K1360 - Zenit 10 Document J.Daniel

### **ZENIT 11 1981 - ... (1981-1990: more than 1,300,000 units) K1370**

Identical to the ZENIT-EM, with an uncoupled meter, no diaphragm preselection, but non-rotating shutter speed selector dial as on the TTL, ET, and 10.

In addition, a new rewind clutch control, hot shoe, and film type reminder (using the film box end) frame on the camera back.

Uniform focusing screen with central microprism spot.

Black body; 42mm screw mount.

Delivered with HELIOS-44M or 44M-4 2/58mm.

*Variant:*

K1371- ZENIT-11 in Cyrillic characters.

*The ZENIT-ET is also produced in 1985 and 1986 by BelOMO - VILIEKA in Minsk.*



K1370 - Zenit 11 Document SLAVA

### **ZENIT-12 1983**

**K1380**

Identical to the ZENIT-TTL, semi-automatic TTL SLR with :

- Improved viewfinder and mirror.

- new rewind clutch control (used also on the ZENIT-11 c. 1983)

- redesigned self timer.

- film type reminder (using the film box end) frame on the camera back

Opposite: the prototype ZENIT-12, in chrome, still has the shutter of the ZENIT-EM. it is shown with the Era 1.5/50mm (KMZ Museum)



K1380 - Zenit 12 with ERA 6M Doc KMZ

### **ZENIT-12 1983 - 1988 ... (77,850 ex.)**

**K1382**

This is the production body, planned for mass production. But it competes with the ZENIT 12XP, which is better finished.

black body, 42mm screwmount. Export only.

delivered with HELIOS-44M or 44M-4.

*variants:*

K1381 - ZENIT-12 logo in white, with Roman letters (export).

K1382 - ZENIT-12 logo in yellow, with Roman letters (Doc SLAVA).

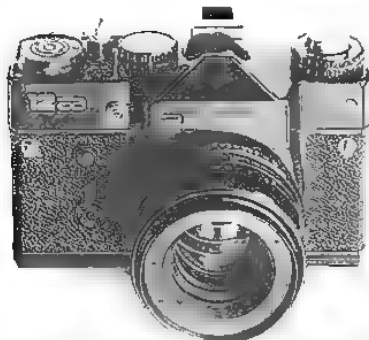


K1382 - Zenit 12 Doc SLAVA

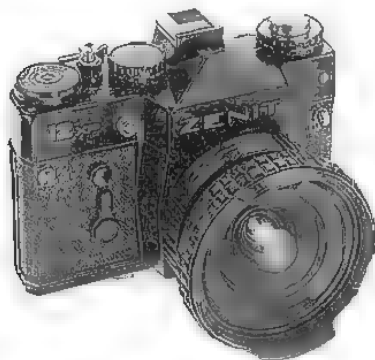




K1381 - Zenit 12 S - Doc M. Masson



K1390 - Zenit 12 SD - Doc J. Danet



K1395 - Zenit 12 XP with MIR 20M - Doc M. Masson



K3601 - Zenit 122 "Spécial Edition" 50 ans KMZ 1992



K3650 - Zenit 15M Document J. Danet

## **ZENIT-12S**

**1982 - 1987**

**K1385**

Zenit 12S for Foto Sniper (see p 173)

## **ZENIT-12 SD (SD) 1983 - 1988 .. (145,046 units) K1390**

Identical to the ZENIT-TTL, semi-automatic SLR with TTL metering at actual aperture. Same advantages as the ZENIT-12 but with LED meter indications in the finder. Focusing screen: Fresnel with central microprism spot.

Focal plane shutter. speeds: B, 1/30 - 1/500s. hot shoe

Black body with 42mm screwmount. Delivered with HELIOS 44M-4.

Variant:

K1391 - ZENIT in Roman letters; "SD" in Cyrillic.

## **ZENIT-12 SDM 1983 - 1988**

**K1393**

Prototype. Like the Zenit 12 with a flash included (on the side of the body)

## **ZENIT-12 XP 1983 - c1992 (more than a million units) K1395**

Export version of the ZENIT-12SD. Presented here with MC-MIR-20M3.5/20mm.

Variants:

K1396 - Version with new yellow painted top plate (#91000005) whose shape is also used on Zenit 12 XPS for Foto Sniper FS-12-3 (p.174)

K1398 - redesigned bottom and top plates, in black plastic.  
marked "Made in Russia" around 1992

## **ZENIT-12 XPS c.1990**

**K1397**

Zenit-12XP with new top plate in black, as supplied with the Foto Sniper FS-12-3 (p.174) (secondary release relay under the body).

*The ZENIT-12 CD and XP are also produced as "ZENIT-15" between 1985 and 1986.*

## **ZENIT-122 1990 - ....**

**K3601**

Apparently a new SLR body. In reality the 122 uses the mechanical elements of the ZENIT-12XP but with a body "shell" in ABS plastic.

The controls are redesigned.

Semi-automatic. Variants exist with 2 or 3 LED in finder. multi-zone focusing screen: Fresnel, microprisms and split image. Speeds: B-1/30 - 1/500s  
Self timer cleverly integrated into the "bulge" on the body which serves as a grip. Body in black ABS plastic with 42mm screwmount.

delivered with HELIOS-44M-6 2/58mm (VALDAI) or HELIOS 77M-4

Main variants:

K3600 - classic version in black ABS plastic. Made in USSR until 1991.

K3601 - "SPECIAL EDITION, 50th anniversary of KMZ", in "titanium" grey ABS plastic with gold silkscreened inscriptions, and serial number prefixed by the number "50" (e.g.: 50925693) and signed "Made in RUSSIA".

K3602 - ZENIT-122 commemorating: "1945-1995 VICTORY".

K3605 - ZENIT-122 XP c 1992. for Foto Sniper 122. (122C or 122 S with Super Taïr 3S in the U.S.A.).

K3610 - ZENIT-122K c. 1990, with K-bayonet mount.

## **ZENIT-15M c.1987 - 90**

**K3650**

New version of the Zenit 122. body in some sort of plastic, visibly not ABS, with an extended speed range: B; 1s. - 1/1000s

Semi-automatic exposure with LED indications visible in finder.

multi-zone focusing screen: Fresnel, microprisms and split image.

hot shoe plus PC flash connector like the 122; X-synch at 1/30s.

self timer. delivered with Helios 44M-4 2/58mm (KMZ, then Valdaï).

*Production taken over and ended by BelOMO.*

**ZENIT-212K "MADE IN RUSSIA" c.1994 - 1995 K3660**

**Only a few hundred produced.**

A Zenit-122 in a new "dress" in ABS plastic. Decidedly modern shape, providing an excellent grip. Semi-automatic. Variants exist with 2 or 3 LED in finder. multi-zone focusing screen: Fresnel, micropisms and split image. Speeds: B- 1/30 - 1/500s. Film check "window" in the hinged back to monitor film type in use. delivered with Helios 44K-4, in K-bayonet mount.



**K3660 - Zenit 212K** Doc. KMZ Photokina

**ZENIT-312M "MADE IN RUSSIA" c.1998 K3670**

Same as 212-M, but with 42mm screwmount. Delivered with a pretty new version of the aging HELIOS, known as the Zenitar-M2 2/50 KMZ (illustration p. 125)

**Variantes:**

K3672 / K3673 Bi-color versions and "GOLD" version of ZENIT-312M

**ZENIT-312K "MADE IN RUSSIA" c.1998 K3675**

Identical to the 312M, but with with K-bayonet mount.

**ZENIT-412"DX" photokina 2000 K3680**

Identical to the 312M, with "DX" code.

## ZENIT "Scientific Models"

*In the world over, optico-mechanical firms offer products oriented to the scientific market.*

*In the USSR, GOMZ-LOMO, ARSENAL, KMZ and its satellite factories, follow the same pattern.*

*However, this subject is so vast and complex that it is represented here by only a few elements, as a preface to the page dedicated to the ZENIT "SURPRISE" whose name continues to amaze us.*



**K1470 - Zenit VZ** - Doc. M. Kostjukovskia

**ZENIT VZ c.1980**

**K1470**

**ZENIT VZ-2 c.1984**

**K1475**

Based on the ZENIT-B (V) body with a circular viewing screen for use with a microscope.

Otherwise similar to the ZENIT-V (see p.155).

42mm screwmount

These cameras could be equipped with FM-35 or FM-50 for endoscopic applications.

These might be intermediate versions between the MT and MT1.



**K1475 - Zenit VZ-2** - Doc. M. Kostjukovskia

**ZENIT "LAB"**

**K1304**

Based on an SLR body with TTL metering. One speed: B.

Camera is not marked on the outside, the serial number being engraved on the inside back, visible only with the back open.

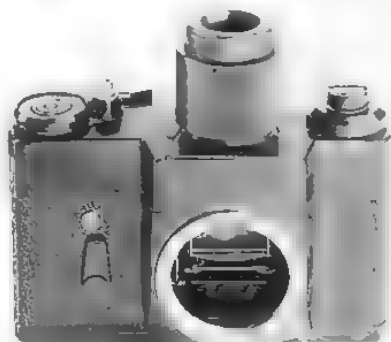
Probably produced by KMZ to be used on microscope or other laboratory equipment. High magnification focusing loupe.

42mm screwmount

Could be equipped with the VEGA 5Y 4/105mm made by BeLOMO.

**Variant:**

K1371 - ZENIT "Labo" based on the ZENIT 11.

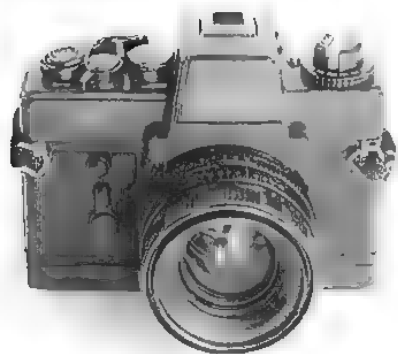


**K1304 - Zenit "LABO"** - Doc. J. Daniel

## ZENIT THIRD GÉNÉRATION



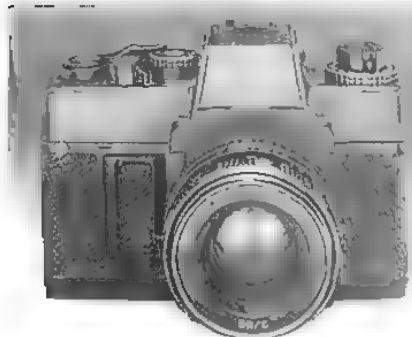
K1333 - Zenit-19 Doc M. Masson



K1340 - Zenit-18 Doc M. Masson



K1400 - Zenit-20 Doc KMZ



K1420 - Zenit-21 Doc KMZ

**ZENIT-ELEKTRO** Prototype c1976**K1330****ZENIT-T1** MTL Preserie c1977 - 1978 K1332

Presented at Photokina 1978. Preseries of the ZENIT-19.

**ZENIT-19** Production 1979 - 1987**K1333**

(121,993 units)

Production model. New semi-automatic full frame 35mm SLR.

Electronically controlled vertical displacement metal blade type focal plane shutter. Speeds: T; B; 1 - 1/1000s, X-sync at 1/60s.

Black body; 42mm screwmount.

Delivered with ZENITAR-M

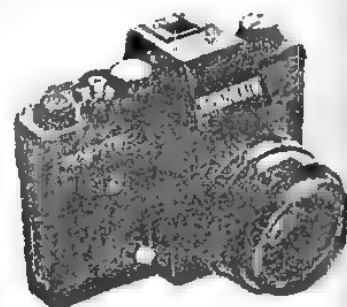
1.7/50mm or HELIOS-44M 2/58mm

Variants:

K1333 - X-Sync at 1/60s.

K1334 - X-Sync at 1/125s.

K1335 - ZENIT-T1 or ZENIT-19, delivered from 1979 to 1983 in attache case with lenses and accessories.



K1330 - Zenit ELEKTRO Doc M. Masson

**ZENIT-18** 1980 - 1987 (7001 units)**K1340**

Body close to the Zenit-19, 42mm screwmount.

Delivered with ZENITAR-ME1 1.7/50mm

See also p. 164, Zenit-18 derived from the Zenit-16.

**ZENIT-20** c.1982 - 1983**K1400**

Probably the development prototype of the ZENIT-AUTOMAT.

Fully automatic program 35mm SLR. Vertical metal blade focal plane shutter with electronic speeds: B; 1s-1/1000s, plus 1/100s. mechanical speed. 1/125s X-sync. Electronic self timer. K-bayonet mount.

Presented in the "TENTO" catalogue with the ZENITAR-ME1 1.7/50mm.

**ZENIT-20** c.1985**K1405**

Prototype from Zenit-A project. ZENITAR-1.4/50mm (K1697).

**ZENIT-22** c.1982 - 1984**K1410**

35mm SLR identical to the ZENIT-20, but semi-automatic.

Proposed with HELIOS 44K-4 2/58mm

**ZENIT-21** c.1982 - 1983**K1420**

Body having the same shape as the ZENIT-19 and 18.

mechanical vertical blade focal plane shutter. Speeds: B; 1 - 1/1000s.

X-sync at 1/60s. proposed with HELIOS-44K-4 2/58mm

**ZENIT-22** c.1982 - 1984**K1425**

Second version of the ZENIT-22, but using the body of the ZENIT-21, also semi-automatic. Vertical metal blade focal plane shutter with electronic speeds: B; 1 - 1/1000s, plus 1/100s. mechanical speed. 1/125s X-sync. Electronic self timer. K-bayonet mount. proposed with ZENITAR-K4 1.7/50mm

**ZENIT-AUTOMAT 1984... (1984-1988: 12,047 units) K1450**

**ZENIT-AUTO K1451**

New Body, probably the production model of the ZENIT-20.

Automatic 35mm SLR with TTL metering at maximum aperture.

Motorola electronics. (62)

Aperture priority automatic. DoF preview button, indicating a professional or advanced amateur target market.

LED meter indications. +/- 2 stop meter override.

Modes: A = Automatic; B = manual; X = X-sync at 1/60s. Speeds: B; 1 - 1/1000s.

K-bayonet mount

delivered with HELIOS-44K-4 2/58mm and planned with HELIOS-77K-4

**Variants:**

K1450 - ZENIT-AUTOMAT in Cyrillic characters (Italic or straight)

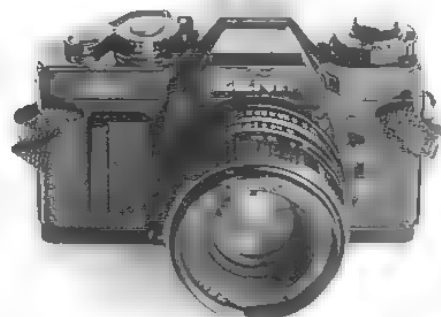
K1451 - ZENIT-AUTOMAT in Roman letters.

K1453 - ZENIT-AUTO. identical to the ZENIT-AUTOMAT but with Soviet-made electronics.

K1455 - ZENIT 2000 c. 1992. Announced speeds: 4s. - 1/2000s. with X-sync at 1/125s. Presented with Helios 44M-5 (Valdaï). *This may be one of the models that makers show to dealers at major shows like Photokina, to get a reading on market acceptance. This body has nothing to do with the Zenit 2000 K3500.*



K1450 - Zenit Automat Doc. J Daniel



K1453 - Zenit Auto Doc. J Daniel

**ZENIT-14 c. 1987-1989 (May be a few hundred units ?) K1460**

Identical to the ZENIT-AUTOMAT, but semi-automatic.

Electromechanical shutter, speeds: B; 1s - 1/1000s. Electronic self timer

LED meter indications. X- and LA-sync. (?)

K-bayonet mount. delivered with HELIOS-44K-4 2/58mm.

**Variant:**

K1265 - Identical to the ZENIT-14 but with ZENIT-14K logo. Delivered with HELIOS-44K-4 2/58mm.



K1460 - Zenit-14  
Doc. M Kostjukov

**ZENIT-AM c. 1988 .... K3510**

Successor to the ZENIT-14 but aperture priority automatic.

Vertical metal blade electronic shutter.

K bayonet mount. Delivered with HELIOS-44K-4 2/58mm.

**ZENIT-AM2 c. 1990 .... K3520**

Visually identical to the ZENIT AM (135)

**ZENIT-AM3 c. 1994 .... "MADE IN RUSSIA" K3530**

Slightly remodeled ZENIT-AM, presented at the 1994 Photokina.



K3510 - Zenit-AM Doc. KMZ - Photokina

**ZENIT-2000 c. 1985 Prototype (Z 2000) ðððð K3500**

Prototype of the ZENIT AP, with 1/2000s shutter and provision for motor drive.

One of the first 35mm SLR's with "Western design inspiration."

**ZENIT-AP c. 1990 K3550**

**ZENIT-APK c. 1992 K3560**

New line of 35mm cameras. Several variants were already present by 1994...

**ZENIT-APM c. 1992 K3561**

42mm screwmount.



K3560- Zenit APK  
+Variozenitar  
Doc. J Daniel

**ZENIT-KM photokina 2000 K3590**

Reflex TTL intégral, LED, MOTORISÉ ! (2 im./sec.) Monture K, Automatique

Expo. Auto (8sec.-1/2000) / Manuel (1s.-1/2000). "Made in Russia".



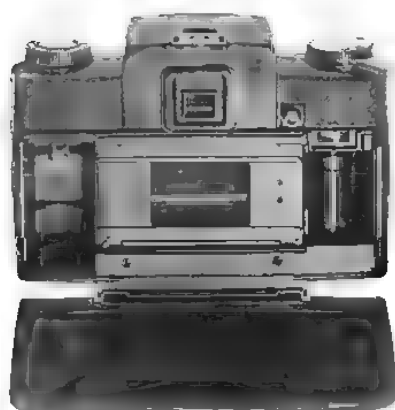
K1310 - Zenit-16 Semi-automatic

Maybe the first quality 35mm SLR in the world to be made from molded plastic.

After the ZENIT-7 and ZENIT D, the KMZ engineers demonstrate once again their audacity and creativity with the purity of line of this new ZENIT. The announced characteristics were ambitious, making the ZENIT 16 a unique camera.

The unit is attractive, but the vertical running shutter worked badly, very badly. A Russian photographer friend told the tale of some rather disgruntled Moscow photographers who expressed their (legitimate) dissatisfaction by throwing their cameras against the walls of the great KMZ store.

Complementary information affirms that KMZ took back the malfunctioning cameras they had sold, and destroyed them after having exchanged them against a somewhat less ambitious SLR, the ZENIT-VM.



Placing the release button on the camera back was a "lousy good idea." This position almost guarantees camera movement...



Underneath the body: battery compartment, film speed setting dial in GOST, and the serial number.

## ZENIT-16 SEMI AUTOMATIQUE

K1310

1973 - 1977 (11,114 units)

Full frame 35mm semi-automatic SLR with TTL CdS metering.

Body comprising exactly three assemblies:

- primary mechanism consisting of the mirror chamber, shutter, film rails and mechanical elements of the ZENIT-16;

- two molded plastic shells constituting the body,

- the metal back opening on its horizontal hinge.

The idea was re-introduced with the Horizon 202. Instant return mirror

Vertical-running focal plane shutter, speeds: b; 1/15 - 1/1000s.

Shutter release located on camera back below the advance lever.

film transport mechanism with a single row of teeth, on the lower side. (???) single row or single tooth? l'image semble montrer la dentition superieure, non pas inferieure. Hot shoe

Back opening switch incorporated into viewer eyepiece; pushing it up opens the back (like on the Mamiya-Tower Automatic-35).

42mm screwmount. Delivered with HELIOS-44M 2/50mm (see ZENIT BM).

Variants:

K1311 - Marked "16" on a red background (#7400600), with a modified eyepiece and back opening by a push-button.

K1313 - Special version for FotoSniper K2330 (p.174).

K1315 - Zenit "SURPRISE-MT" based on the Zenit-16 (p.165)

## ZENIT-15 c.1974 (only a few units made)

K1320

identical to the ZENIT-16 but meterless.

Never mass produced and never seen, for the time being.

## ZENIT-18 c.1977 (prototype)

K1325

Presented in the Jan. 1978 issue of Sovetskoe Foto, equipped with Yantar-5, sitting next to a Zenit-Electro, which would become the Zenit T1.

## ZENIT-PAK TTL c.1974/75 (prototype)

K3900

Prototype SLR for vertical (!) 126 film (cartridge?) with ZENIT-16 style.

Designer A.K. Chablevitch.

## ZENIT "SURPRISE / MT"

c.1973 - 75

**K1315**

Originally this camera was to be used by the medical profession for taking endoscopic images.

Automatic half frame (18x24) SLR, based on the ZENIT-16 (or 15)

Vertical running focal [plane shutter (see p.158).

Speeds: B; 1/15 - 1/250s.

Hot shoe.

Presented here with the MIR-25C 3.5/30mm lens (# 740010).

This camera seems not to have been mass produced, probably for the same reasons as the Zenit-16: serious malfunctions of the shutter.



ZENIT SURPRISE - Doc. M. Kostjukavsky

## ZENIT "SURPRISE / MT1"

c.1979 - c.1990

**K1480**

Originally this camera was to be used by the medical profession for taking endoscopic images.

Automatic half frame (18x24) SLR, based on the ZENIT-11 (or 19)

72-image frame counter

Full frame vertical running metal blade shutter

Speeds: B; 1s - 1/1000s. X-sync.

Data back with external power source.

Breech-lock bayonet similar to that of ZENIT-7, with tightening ring on lens (Praktina type.)

Lenses: Industar-50MT 7/50mm and MIR-35MT 3.5/30mm

ZENIT delivered in a wooden case, complete with accessories .

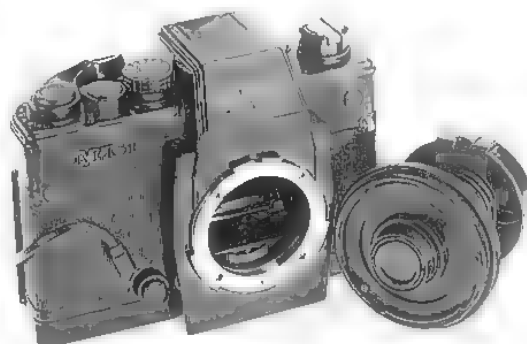
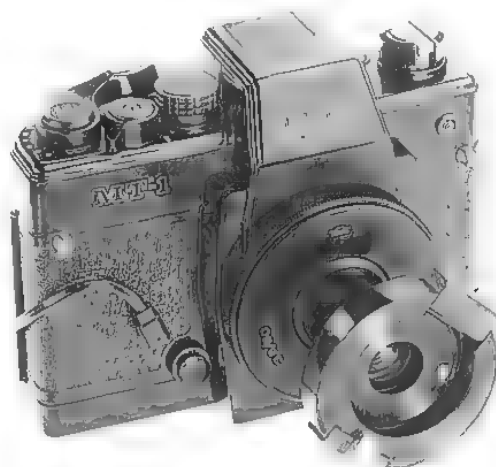
*Variants:*

K1481 - c. 1980 ZENIT "SURPRISE-MT1" 24x24. Bayonet mount.

K1482 - c. 1985 ZENIT "SURPRISE-MT1" 18x24. 42mm screwmount

K1483 - c. 1986 ZENIT "SURPRISE-MT1" 24x36. 42mm screwmount

K1490 - c. 1986 "ZENITSA-MT" for ophthalmological images; based on ZENIT TTL.

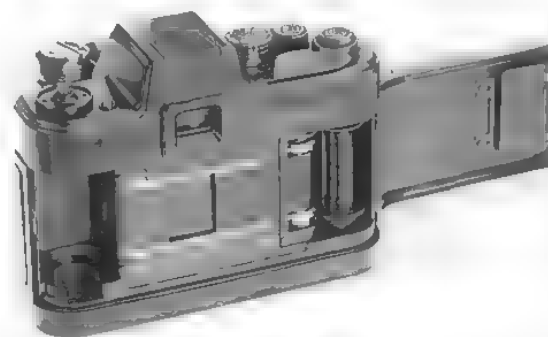
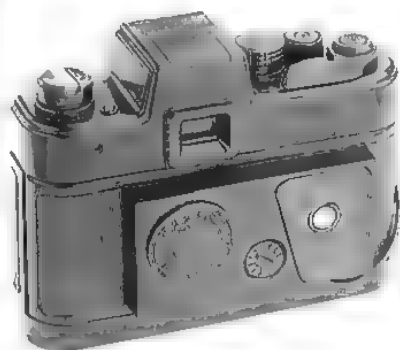


**ZENIT SURPRISE MT1 :**

above: external bayonet mount of the ZENIT SURPRISE, very similar to that of the ZENIT-7.

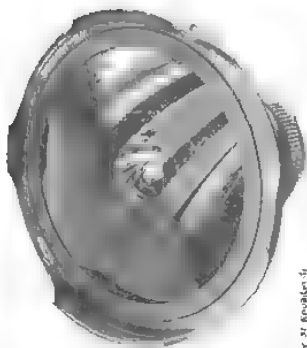
left: data back

right: half frame (18x24mm) shutter

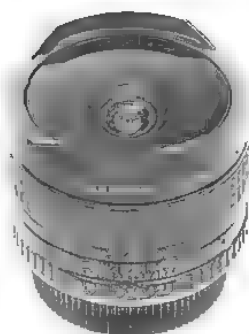


ZENIT SURPRISE MT1 - Doc. M. Masson

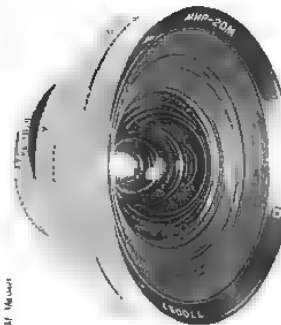
# Lenses for KMZ reflex cameras



**K1500 - ZODIAK-2M**  
3.5/15mm - 1975 - 1980  
180° "fish-eye"  
**K1505 - ZODIAK-2M2**  
3.5/15mm beginning 1978  
ident. to the K1500 except sunshade.



**K1520 - ZENITAR-K**  
2.8/16mm  
c. 1989 - 180° "fish-eye"



**K1550 - MIR-20M** 3.5/20mm  
c. 1977 - 1992 - 94° Automatic -  
42mm screwmount

**K1510 - MIR-51M** 3.5/15mm  
c. 1980 - 115° rectilinear

**K1530 - MIR-47M**  
2.8/20mm - c1980 - 96°

**K1535 - MIR-47K**  
2.5/20mm - K-bayonet  
later produced by VALDAI

**K1540 - MIR-64K** 2.8/20mm  
c1990 - 96°

**K1555 - INDUSTAR-49**  
3.5/25 mm - c1953 for Zenit

**K1580 - MIR-61K**  
2.8/28mm c1988

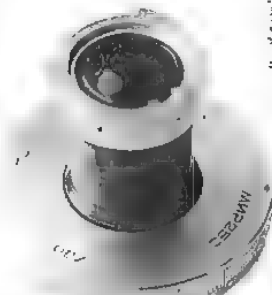
**K1595 - MIR-4** 3.5/29mm  
c1960 - 75°



**K1560 - MIR-10** 3.5/28 mm  
c. 1970 - 1980 - 75° ± 14005 manual  
- 39 and 42mm screw mount

**K1561 - MIR-10A** 3.5/28mm  
c. 1980 - 75° manual -  
39 and 42mm screwmount

**K1562 - MIR-10M** 3.5/28mm  
Automatic



**K1575 - MIR-25C** 3.5/30mm  
For ZENIT SURPRISE  
c. 1974 (see p.165)



**K1570 - MIR-35MT** 3.5/30mm  
For ZENIT SURPRISE



**K1590 - MIR-24M** 2/35mm  
Starting 1980 - 66°  
automatic - 42mm screwmount



**K1600 - MIR-46MA**  
1.4/35mm c1980

**K1601 - MIR-46MK**  
1.4/35mm c1982



**K1620 - MIR-1** 2.8/37 mm  
Calculated in '54 at the Vavilov  
Institute. Prototype # 000001.  
c 1955  
manual - 42mm screwmount

**K1621 - MIR-1** 2.8/37mm  
c 1956 - c. 1980 - 60°  
"Grand Prix de Bruxelles in 1958"

**K1622 - MIR-1** 2.8/37mm  
EXAKTA mount (c. 1964).

**K1623 - MIR-1** 2.8/37mm  
START mount

**Zg 50 - MIR-1** 2.8/37mm  
Produced c. 1970 at ZOMZ  
black finish

**Zg 60 - MIR-1** 2.8/37mm  
Space vers on on FAS by ZOMZ  
(see p. 249)

**K1624 - MIR-1A** 2.8/37mm  
c. 1972 - automatic 39 and 42 screw-  
mount.

**Zg 55 - MIR-1B** 2.8/37mm  
(p 249)



**K1625 - MIR-1** 2.8/37mm  
Space version on FAS by KMZ  
(see p.60)



Just as with the bodies, some lens models enjoy long production runs, others short ones.

The Industar and Helios are made in the thousands by KMZ, VALDAI, and BelOMO. The acquisition of a few unusual types, like the HELIOS-65 or ERA-6, of which only a few of each were produced and sold, will highlight any collection. (60b)

# **K390 - INDUSTAR-22**

**K480 - INDUSTAR-49** 3.5/25mm  
- c1953

**K420 - INDUSTAR-50**  
voir aussi page 142:

**K1630 - INDUSTAR-62** 3.5/50mm  
c. 1968 - 45° - never produced

**K1650 - INDUSTAR-61L/2**  
2.8/50 - c. 1977 - 46° Macro lens  
Produced c. 1979 by LZOP

**K1150 - VEGA-3** 2.8/52mm  
see also page 153

**K1155 - HELIOS-65** 2/50mm  
see also page 153

**K470 - INDUSTAR 50MT**  
3.5/50mm  
For ZENIT SURPRISE

**K1640 - INDUSTAR-61M**  
2.8/50mm  
c. 1970 - 45°; never produced

**K1645 - INDUSTAR-61a**  
2.8/52mm -  
Macro lens

**K1670 - HELIOS-65**  
2/50mm  
2/50mm c. 1965 - prototype # 00002  
manual - 42mm screwmount

**K1675 - HELIOS-97M**  
2/52mm - 42mm screwmount

**K1690 - ZENITAR** 1.9/50mm  
c. 1978 - 45° for ZENIT 19 and 18

**K1660 - VEGA-1**  
2.8/50mm c. 1962 -  
prototype #00005  
manual - 42mm screwmount

**K460 - R-HELIOS-2**  
2/45 mm c1953 - prototype  
manual - 42mm screwmount  
For Zenit

**K1680 - HELIOS-77K-4**  
1.8/50mm - c. 1982 - 45° for ZENIT  
AUTOMAT. Automatic - K-bayonet

**K1691 - MC ZENITAR** 1.9/50mm  
c. 1990

**K1681 - HELIOS-77M**  
1.8/50mm  
c. 1990 - Produced by VALDAI

**K1694 - ZENITAR-M** 1.7/50mm  
c. 1978 - 46° for ZENIT 19

**K1672 - HELIOS-65**  
2/5.2 cm. Finition noire.  
SIGNÉ GOI.

**K1695 - ZENITAR-MEI** 1.7/50mm  
c. 1980 - 46° for ZENIT 18  
see p.160 (K1340)

**K1696 - ZENITAR-K4** 1.7/50mm

**K1697 - ZENITAR** 1.4/50mm  
de 1982 - 1985

**K1698 - ZENITAR-K** 1.4/50mm  
c1985 - 1992

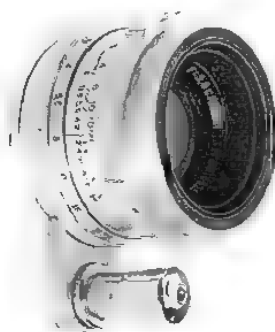
**K1710 - ERA-6M** 1.5/50mm  
c. 1980 - prototype #000455

**K1720 - BTK.** 2/58mm  
c. 1951 - BioTar Krasnogorsk  
"Father" of the HELIOS 44, this  
German lens is pictured in the  
SYROV, mounted on the first ZENIT

**K1699 - HELIOS 101** 1.8/52mm  
c1971

**K1700 - ERA-1** 1.8/52mm  
42mm screwmount  
see also ERA 18 for KIEV 17

see p.161 #000095 on prototype  
ZENIT 12 and p.159 #000465 on  
ZENIT EM  
42mm screwmount



**K1730 - HELIOS-44 2/58mm**  
1958 - 1964 - # 0136438 (1961)  
START bayonet  
Exakta type automatic diaphragm  
**Variant:** K1732 Black  
**K1735 - HELIOS-44 2/58mm**  
1962 - Automatic Black.  
For START-3



**K1740 - HELIOS-44 2/58mm**  
c. 1960 - Preseries # 0001817  
Chrome, manual - 39 and 42mm  
screwmount.  
on export model ZENIT-3 c. 1963-64  
on ZENIT-E starting 1965



**K1750 - HELIOS-44 2/58mm**  
c. 1966 - 1967  
black version  
39 and 42mm screwmount.  
later produced by BelOMO for  
ZENIT E VILIEKA



**K1760 - HELIOS-44-2 2/58mm**  
c. 1955 - 1978 "The Classic"  
black finish  
manual - 39 and 42mm screwmount  
later produced by KMZ, VALDAI  
and BelOMO



**K1770 - HELIOS-44-1 2/58mm**  
c. 1969 - first version of the Helios,  
in a special bayonet for ZENIT-7  
(see p.157).



**K1772 - HELIOS-44-7 2/58mm**  
c. 1969  
special bayonet for ZENIT-7



**K1780 - HELIOS-44M 2/58mm**  
c. 1972 - with ZENIT-VM and EM.  
Automatic - 42mm S.M. (see K1080)

**K1790 - HELIOS-77K-4 2/58mm**  
c. 1984 - For ZENIT Automat  
Automatic - K-bayonet

**K1795 - HELIOS-44K 2/58mm**  
c. 1985 automatic - K-bayonet

**K1796 - HELIOS-44K-4 2/58mm**  
c. 1987 - on ZENIT 14  
Automatic - K-bayonet



**K1775 - HELIOS-44-D 2/58mm**  
c. 1968 - for ZENIT-D Auto.  
(see p.157).

**K1782 - HELIOS-44M 2/58mm**  
same as K1780 but modernized

**K1785 - HELIOS-44M4 2/58mm**  
c. 1984 - automatic - 42 screwmount

**K1800 - HELIOS 107M**  
2.8/65mm (!)  
c. 1960 - 1965 50°

**K1805 - P02-2M 2/75mm**  
c.1980 - 6 elements.Symmetric

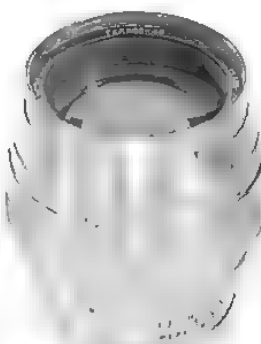
**1810 - HK-B5 (HELIOS-K)**  
2/85mm - c. 1962 28°

**K1815 - IUPITER-23 2.8/85mm**  
c. 1950/60 - prototype № 000005  
manual - 39mm S.M. for reflex

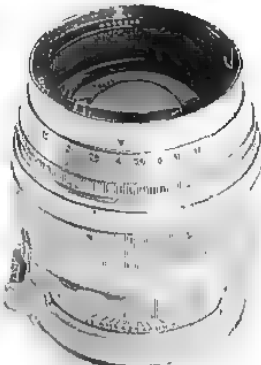
**K1820 - IUPITER-9 2/85mm**  
1951 - prototype = 510072  
manual - 39mm S.M. for reflex

**K1823 - IUPITER-9 2/85mm c.**  
1960 - 28°, manual, 39 and 42mm  
screwmount  
**Variants:**  
K1824 - EXAKTA bayonet  
K1825 - black finish c. 1970

**K1828 - IUPITER-9 2/85mm**  
c. 1980 - 29° 39 and 42mm screw-  
mount  
(see also IUPITER-9 p. 145, p. 210, p.247)



**K1830 - HELIOS-40-2 1.5/85mm**  
c. 1960 - 28°, manual, 39 and 42mm  
screwmount.



**K1832 - HELIOS-40-2 1.5/85mm**  
c. 1960 - 28°, manual - 39 and 42mm  
screwmount tripod bushing



**K1835 - HELIOS-40-2 1.5/85mm**  
c. 1975 - 28° - new lens coatings,  
black finish

**K1840 - ZENITAR I-K**

1.4/85mm. 28°

Prototype 1984 + little production

c. 1986. K-bayonet.

**K1850 - VEGA-13A**

2.8/100mm c. 1972 - 24°

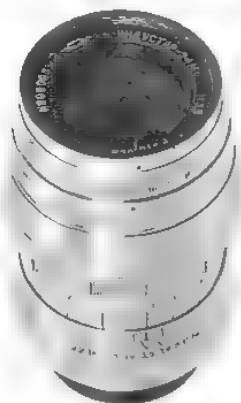
manual, 39 and 42mm screwmount.

**K1855 - VEGA-13M**

2.8/100mm

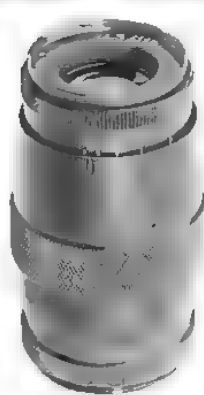
c. 1979 - 24°

Automatic - 42mm screwmount.

**K1858 - Industar-24M**

3.5/105mm # 000003

c. 1960 - 23° - 39 screwmount.

**K1860 - I-23-2** 4.5/110mm

c. 1960 - prototype, in 42mm screw-

mount for reflex, of the Industar-23

lens for the 6x9 MOSKVA-4.

Lenses with name designations ending in -A (e.g. TAIR-11A) have a removable adapter ring to convert 39mm to 42mm screwmount, quite similar to the SOLIGOR T2 adapter. These adapters correct the difference in flange depth between the 39 and 42mm screwmounts on the various bodies. (60)

Lenses with name designations ending in -M have automatic diaphragms...

... and in -K, with PENTAX-K bayonets.

**K1880 - JUPITER-37A**

3.5/135mm

c. 1982 - 18°

manual, 39 and 42mm screwmount

**K1885 - JUPITER-37K**

3.5/135mm

c. 1986 - 18°

automatic - K

Produced by Kazan

**K1870 - JUPITER-11**

4/135mm c. 1960 - 18° - chrome.

manual, 39 and 42mm screwmount

Produced by Kazan

Variation: K1871 - black finish

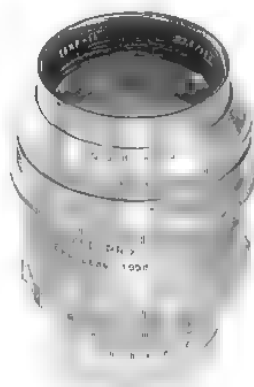
**K1875 - JUPITER-11A**

4/135mm

c. 1972 - generally in black finish

manual, 39 and 42mm screwmount

Produced by Kazan

**K1900 - TAIR-11**

2.8/133mm

c. 1960 - 18°30' - #006147.

"Grand Prix de Bruxelles in 1958"

manual, 39 and 42mm screwmount

Variant:

K1901 - Exakta bayonet

**K1910 - TAIR-11**

2.8/135mm

c. 1972-1980 - 18°

**K1915 - TAIR-11A**

2.8/135mm

c. 1980-1992 - 18°

manual, 39 and 42mm screwmount

**K1920 - TELEZENITAR**

2.8/135mm

c. 1983 - 18°

manual, 42mm screwmount

**K1930 - MC - APO-TELEZENITAR**

2.8/135mm

c. 1983 à 1990 - 18°

automatic - 42mm screwmount

**K1935 - MC - APO-TELEZENITAR-K**

2.8/135mm

automatic, K-bayonet

**K1940 - MC FODIS-1K**

1.8/135mm

c. 1985 - 18° - Preseries by KMZ

automatic - K-bayonet

Produced by Kazan

**K1945 - TAIR-56**

2.8/150mm

**K1980 - JUPITER-6**

2.8/180mm

c. 1970 - 14° - #001490 - 1360g.

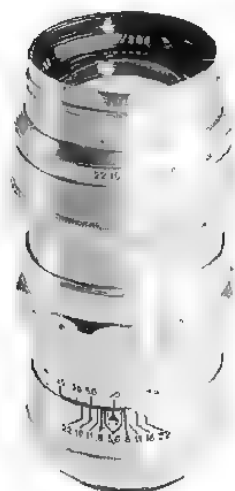
manual, 39 and 42mm screwmount

**K1990 - JUPITER-6-2**

2.8/180mm

c. 1977 - 1978 - black finish

Starting in 1985 most lenses are offered in catalogues, brochures and instruction books in their MC (Multi-Coated) as well as "classic" versions. To shorten the tables below, these references are not repeated.



**K2000 - TELEMAR-22**

5.6/200mm

c. 1970 - 1976 - 12° (#005612)

very short production run.

manual, 39 and 42mm screwmount



**K2005 - TELEMAR-22-2**

5.6/200mm

c. 1975 12°



**K2010 - TELEMAR-22A**

5.6/200mm

c. 1980 - 12°



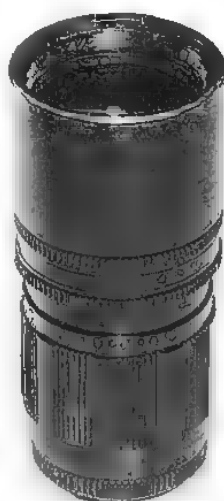
**K2020 - JUPITER-21**

4/200mm

c. 1957 ? - 12° (#570005)

identical finish to the 1956 TAIR-3.  
built-in sunshade creating a protection.

manual, 39 and 42mm screw mount

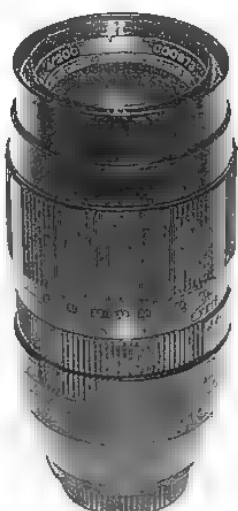


**K2030 - JUPITER-21A**

4/200mm

c. 1978 - 12° (#000236)

manual, 39 and 42mm screwmount



**K2040 - JUPITER-21M**

4/200mm

c. 1980 - 12° (#00073)

automatic - 42mm screwmount

produced elsewhere than KMZ



**K2050 - TAIR-3**

4.5/300mm 1956 - 1965 - 8°.

Successor of the 300mm of the photographic rifle FS2-KMZ (p.83).

"Grand Prix de Bruxelles in 1958"

**K2055**

START bayonet.



**Zp80 - TAIR-3A - 4.5/300**

Replaces K2050, redesigned and produced c. 1960 by ZOMZ.

**K2055 - TAIR-3 AS**

As used on the FOTOSNIPER photo-rifle starting 1965.

grey enamel finish

*Variants:*

K2056 - black version

K2057 - in black, TAIR-3FS

K2058 - in black, TAIR-3PHS

see p 173 - 174.

## D.D. MAKSTOV

Born in 1896, Dimitri Dimitriev Maksutov accedes in 1964 to the pantheon of great optical calculators, joining Chevallier, Petzval, Rudolf, Berek.

Although Maksutov is a recognized international personality, we have, even now, no real information on his life.

Optical engineer at the State Optical Institute (GOI), Maksutov designs the Tair. (According to legend, the inspiration for this lens came to him as he looked at the sun's reflections in the still waters of Lake Tair.)

But D. D. Maksutov is especially known for his catadioptric lens design. Its originality resides in the use of inexpensive spherical mirrors instead of the costly parabolic mirrors requiring manual retouching and avoiding a support for the secondary mirror, inherent in the Cassegrain system (c. 1670). For this development, D. D. Maksutov obtained the Stalin Prize.

However, it is in all likelihood the recognition paid by the world's astronomers that honors Maksutov more than anything else.

The photo lenses are at first made in Leningrad, then in Krasnogorsk (Grand Prix de Brussels, 1958), and finally in Lytkarino. (63-125-126-127-127bis)

**K2200 - MTO-500 8/500mm**

Catadioptric Mirror-Telephoto lens  
c. 1955 to 1966. 5°; 39 and 42 screwm.

**Variants:**

- first version, Brussels prizewinner in 1958
- different presentations

**K2202 - MTO-500A 8.5/550mm**

c. 1970 - 5° - 42 screwmount

**then:**

- ZM-4A c1970
- ZM-5A c1975
- ZM-6A c1985

**K2205 - MTO 5.6/35cm**

c. 1958. 39 screwmount for half format.

**K2206 - MTO-35M****K2210 - MTO-1000 10/1000mm**

Catadioptric Mirror-telephoto lens  
c. 1955. 2°30'; 39 and 42 screwmount

**K2212 - MTO-1000 A 10/1000mm**

c. 1970 - 2°30'; 39 and 42 screwmount  
see also p. 247.

K2200- MTO-500 MIRROR TELE OBJECTIF  
MAKSUTOV TELE OPTIC.



K2070 - TELEZENITAR-M

**K2060 - TELEZENITAR**

4.5/300mm  
as used on the photo rifle FOTO-SNIPER FS4 c. 1975

**K2070 - TELEZENITAR-M**

4.5/300  
c. 1979 - 8°.  
automatic - 42 screwmount

**K2075 - TELEZENITAR-K**

4.5/300 - c. 1985 - 8°.  
K-bayonet.

**K2080 - APO TELEZENITAR**

4.5/300mm c. 1988  
New appearance

**K2085 - APO TELEZENITAR-K**

4.5/300mm c. 1988  
New appearance

**K2100 - VARIOZENITAR**

2.8 ~ 3.5/25 ~ 45mm - c. 1991  
82° ~ 52° (see illust. K3560)

**K2110 - VARIOZENITAR-K**

2.8/35 ~ 100mm  
c. 1985 - 64°5 ~ 23°5

**K2120 - VARIOZENITAR-K**

2.8 ~ 3.5/35 ~ 70mm  
c. 1991 - 61°5 ~ 34°5

**K2125 - VARIOZENITAR-M**

5.6/100 ~ 200mm - c. 1991 -

**K2130 - VARIOZENITAR-M**

3.5/40 ~ 120mm  
c. 1975 - 57° à 23°5

**K2134 - YANTAR-5**

2.9/40 ~ 80mm - c. 1978

**K2135 - YANTAR-5M-1**

2.9/40 ~ 80mm - c. 1991



K2135 - YANTAR-5M

**K2140 - VARIOZENITAR**

5.6 ~ 8/200 ~ 500mm  
c. 1979 - 12°5 ~ 5°

**K2150 - GRANIT-11A**

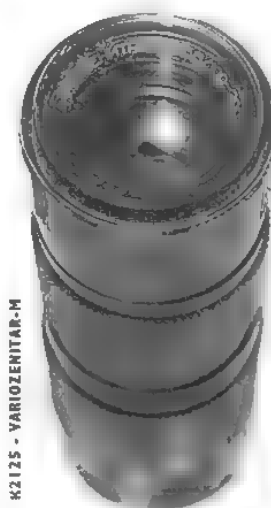
4.5/80 ~ 200mm  
c. 1985 - 30 ~ 12°

**Variants:****K2155 - GRANIT-11M**

4.5/80 ~ 200mm  
c. 1988 - automatic 42 screwmount  
**A 590 - GRANIT-11N**  
identical to the 11-M with  
Kiev/Nikon-bayonet (see KIEV chapter)

**K2160 - GRANIT-16K**

5.6/200 ~ 500mm  
c. 1986 - 12° ~ 5°5



K2125 - VARIOZENITAR-M

# FOTOSNIPER FS-2 KMZ

## K2300

Photographic gunstock outfit FS-2 KMZ #1246, 4.5/30cm lens #1273. Both outfits bear the Red Army symbols: the star, the superimposed hammer and sickle, and the KMZ logo beneath. The specifications seem to be identical to the e GOI-FS-2 (see p.38)

## FS-2 1944 - 1945

Photographic gunstock outfit equipped with a FED body and a TAIR 4.5/30cm KMZ telephoto lens.

Fewer than 300 outfits seem to have been made.

Lowest number of the reflex housing reported: #1034

Highest number of the reflex housing reported: #1248

Legend has it that Nikita Khrushchev, a well-known amateur photographer and proud owner of an FS-2 rig, went to the KMZ works one fine morning on a neighborly visit to get his FS-2 checked out and serviced. He discovered to his surprise, that it was no longer being made!

The first secretary's desires were fulfilled in 1965 (64) with the arrival of the ZENIT-E. That year 350 ZENIT-E and 15 FOTOSNIPER kits were placed on the market.

## K2305

Occasionally in the displays of merchants at shows in Bièvres, Köln, Darmstadt, Houten... one can see some "homemade specials." Some of these gunstocks and pistol grips, whether rigged up by enlightened amateurs or seasoned technicians, also illustrated the pages of SoFo during the sixties. They are fascinating collectibles.

## FS-2 "the Link"

c. 1955 - 1960

The link between the FS-2 and the FS-3, this photo outfit and the photo pistol below, are described in the work by G. IA. ARCHUKHOV (1969) devoted to equipment used for photographic hunting, i.e. wildlife photography.

The Zenit is equipped with the 1956 version of the KMZ TAIR 300mm LENS 1956 (p.170).

The "Tcherpini" photo-pistol has a KRISTALL body and a rapid-focus 300mm lens. (S.F. 1963). The principle employed is reminiscent of the Kilfitt or Novoflex.

(In the same volume, the Novoflex 240-300-400mm are cited as references)

# ФОТОСНАЙПЕР ФС 3

## FS-3 1965 - 1982 (97,938 units)

Photographic gunstock equipped with a full-frame ZENIT-ES (S for Sniper) SLR body derived from the ZENIT-E and modified, particularly regarding the extended viewing ocular, for use with the new Tair3AS automatic telephoto lens with a dial focusing mechanism.

Shutter release integrated into the metal stock via a relay mechanism to a modified release under the camera body.

The original kit was delivered in a grey metal case that could also be carried as a backpack. It contained:

- 1 ZENIT-ES, identical to the ZENIT-E, with a supplementary shutter release relay and modified high eyepoint viewfinder ocular;

- 1 HELIOS-44 2/58mm (K1750)

- 1 TAİR-3AS 4.5/300mm (K2055) with semi-automatic diaphragm, rubber sunshade, pistol grip and shoulder stock, five filters, and a toolkit containing that was needed to assemble and disassemble everything (65). The carrying case can be fitted with straps allowing it to be carried as a backpack.

**Variants in Cyrillic and Roman characters:**

K2310 - 1965 with grey TAİR-3FS. The first version is recognizable by the brass knob to anchor the lens in the case. On later versions this knob is bigger and is painted black.

## K2310



K2320 FS-12 - Doc J. Daniel



Advertisement for the Photo Sniper, "prestige of Soviet Technology" c. 1970 in France.

## FS-12 1982 - 1990 (110,000 units)

### K2320

Identical to the FS-3 but delivered in a black painted aluminum outfit case, with the new ZENIT 12S (12S) and the Helios 44M4, 5 or 6.

**variants:**

- K2321 - delivered c. 1984 with the ZENIT 12XPS.
- K2322 - delivered c. 1985 with the ZENIT 12SD and 12XP. Sometime under FS-12-2 name.

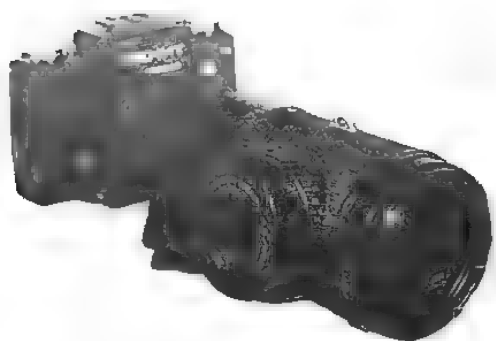
- K2325 - Seen in a black case: a FS12 ZENIT Auto. with K-bayonet 1991 TAİR 3S.



K2320 FS-12

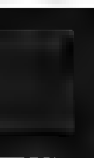
Doc J. Daniel





**K-2330** - PhotoSniper FS-4 mounted on a ZENIT-16 with relay for the shutter release

**K-2340** - PhotoSniper FS-4M (auto diaphragm) mounted on a ZENIT-19  
Document M. P. Mlaček.



**K-2350** - PhotoSniper FS-5 mounted on ZENIT-Automat - Document KMZ



**K-2360** - PhotoSniper FS-12-3 mounted on ZENIT-XPS K1397 with new top plate. Document J. Daniel

## **FS-4 1974 (4 units)**

**K2330**

Photographic gunstock with new TELEZENITAR 4.5/300mm lens. ZENIT-16 mount, planned for ZENIT BM, ZENIT-6, PRAKTICA-L, LTL, LLC, SuperTL and ROLLEIFLEX SL-35.

The wheel controlling the internal focusing becomes larger and is vertical, the stock is redesigned. Kit delivered with HELIOS-44M 2/58mm.

## **FS-4M 1981 (20 units)**

**K2340**

Photographic gunstock identical to the FS-4 but with TELEZENITAR-FSM 4.5/300mm, and planned for the ZENIT-19.

Delivered with the ZENITAR-M 1.7/58mm.



## **FS-5 c.1985**

**K2350**

Photographic gunstock type FS-4 with the new MC TELEZENITAR-K 4.5/300mm in K-mount. ZENIT Automat body.

The internal focusing wheel is now moved underneath the lens. the shoulder stock/pistol grip assembly now becomes very compact when folded.

Delivered with HELIOS-44K-4, filters and accessories in a carrying case.

## **FS-12-3 c.1990 (c 40000 units.) K2360**

Identical to the FS-12, with the new shoulder stock and redesigned focusing wheel.

delivered with ZENIT-12XPS, TAI'R-3S 4.5/300mm HELIOS-44M4 or 44M5, filters, accessories and carrying case.

## **FS-122 c.1992**

**K2370**

identical to the FS-12-3 but delivered with ZENIT-122S and HELIOS-44M-6. (128) (The documentation accompanying the camera is signed: Krasnogorsky Zavod. Russian Federation)

## **FS-312 K Photokina 2000**

**K2380**

Successor to the FS-5. Equipped with the Zenit-212K and the redesigned Tair-3S (Knob focus beneath the lens). (Krasnogorsk, Moscow, Russian Federation)

Premier reflex mono-objectif miniature au monde, le NARCISS est à l'origine un matériel photographique réclamé par le corps médical russe, et plus particulièrement par les services d'endoscopie. Finalement jugé trop petit, équipé d'un obturateur capricieux (voir plus bas) l'appareil ne reçut pas le succès qu'espérait l'usine auprès des services hospitaliers. Pour rentabiliser sa mise en oeuvre KMZ décida de le commercialiser auprès du public amateur russe et occidental ... sans vraiment beaucoup plus de bonheur.

## **NARCISS 1961 - 1965 "NARCISSUS"**

## **K3200**

**Total production: 10,939 units:**

**137 in 1961, 333 in 1962, 415 in 1963, 7484 in 1964, and 2570 in 1965.**

Miniature SLR taking 25 views (14x21)mm on unperforated 16mm film loaded in special cartridges. Injection molded body, with grey, later off-white, enamel finish, white body covering, and chrome trim. Looking like a miniature START camera, the NARCISSUS is conceived as the Start's older brother.

Interchangeable pentaprism viewfinder like the Start, with original plans calling for a finder with a strong magnifier. Lever wind. Focal Plane shutter with speeds: B; 1/2 - 1/500s. Separate X and M sync. contacts.

On the first examples, there is a plaque riveted to the back warning that shutter speeds must not be changed before the shutter is cocked. Removable back with twist-type locks.

Lens: Industar-60 2.8/35mm, on the first models; later the VEGA-M-1

2.8/35mm (mounted on K3210)

delivered with 24mm extension tube/adaptor with 39mm screw thread, allowing the use of the range of ZENIT lenses and accessories.

### **variants:**

**K3200** - NARCISSUS, Cyrillic characters, grey finish.

**K3201** - NARCISSUS, Cyrillic characters, white finish, Industar-60 lens.

**K3202** - NARCISSUS, Cyrillic characters, white finish, VEGA-M-1 lens.

**K3203** - NARCISSUS, Roman letters, white finish, VEGA-M-1 lens.

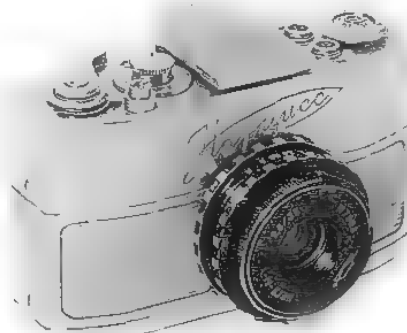
**K3205** - complete outfit with accessories in a wooden case; Cyrillic characters, white finish (with magnifying finder).

**K3206** - NARCISSUS, Cyrillic characters, white finish, in outfit case with endoscopic attachment

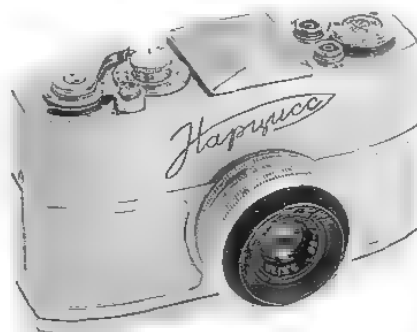
**K3210** - NARCISSUS Cyrillic characters, black finish, VEGA-M-1 lens.

**K3212** - NARCISSUS Roman letters, black finish, VEGA-M-1 lens.

**K3220** - NARCISSUS -2



grey NARCISSUS, equipped with the very rare magnifying finder. doc. M. P. Mladek



K3201 - white NARCISSUS with I-60 lens



K3210 - black NARCISSUS with Vega M-1 lens -

## **NARCISSUS lenses**

**K3220** - MIR-5 2/28mm, (c. 1960) not mass produced.

**K3221** - MIR-6 2.8/28mm, (c. 1960) not mass produced.

**K3225** - Industar-60 2.8/35mm, (1960-61) short production run.  
seen with both black or white lens front.

**K3226** - VEGA 2.8/35mm, prototype.

**K3227** - VEGA-1M 2.8/35mm, (1960) aluminum, short production run.

**K3228** - VEGA-M-1 2.8/35mm standard lens; black lacquer, flat front plate.

**K3229** - JUPITER-17 2/50mm, (1962) special mount. (see K490)



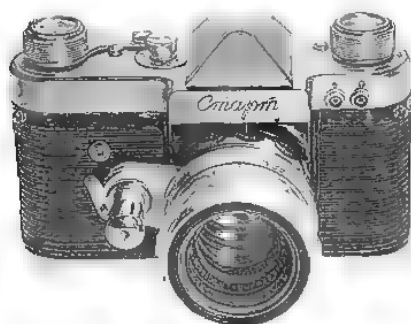
K3221/ MIR-6 N° 000010.

K3226/ VEGA N°00025

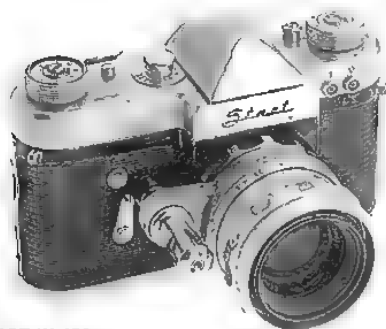
Doc. KMZ

K3220/ MIR-5 N° 00005

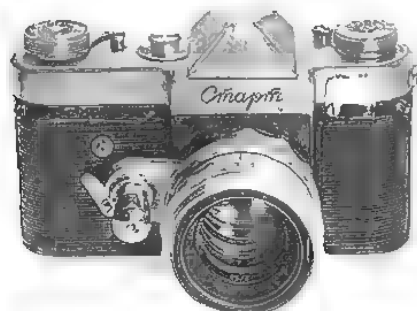
K3225/ Industar-60 N°0021



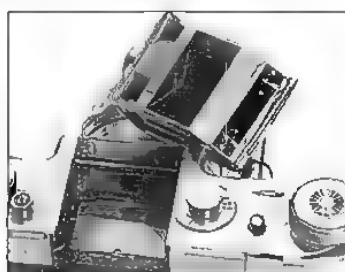
K2400 - START Doc D. Scheiba



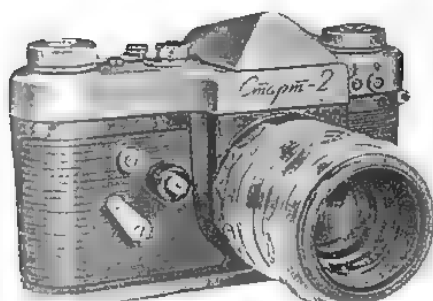
START K2402



K2411 - START Doc D. Scheiba



Viewfinder equipped with 2 selenium cells and electrical contacts. Doc D. Scheiba



K2410 - START-2

Built like a T-34 tank, the START was supposed to conquer the world of Soviet professional photographers. This goal was accomplished. However, the absence of lenses that had been announced, and the fragility of the advance mechanism, strains the patience of the market. 1961 sees a new advance mechanism, and production rises to 20,000 units annually from '61 to '63, but this leaves the public cold, despite the announcement of the START-2 with TTL metering and automatic diaphragm lenses. Production of the START ends in 1964, when 1197 units were made. With the ZENIT 4-5-6, the day of the central shutter 35mm SLR seems to have arrived, and the START is abandoned in their favor.

## **START 1958 - 1964 (76,503 units)**

**K2400**

Full frame 35mm SLR with interchangeable viewfinders and lenses.

Waist-level and pentaprism finders; split image focusing screen.

Focal plane shutter. Speeds: B; 1 - 1/1000s. M and X-Synch.

Self timer, film cutting knife, Exakta-style. Removable back, with two twist locks.

Shutter release on body front like the Exakta

HELIOS-44 2/58mm lens in Praktina-style bayonet mount with external mechanical diaphragm closing arrangement (Exakta or Alpa style.)

In Brussels at the 1958 World's Fair, the MIR and TAIR-11 lenses in Start mount receive gold medals; they are never produced for sale.

the Start is delivered with 39mm screwmount adapter to allow immediate use of the ZENIT lenses.

*variants:*

K2400 - START with oversized control knobs. The frame counter and rewind knob are embellished with Plexiglas plates.

K2401 - Cyrillic letter inscriptions.

K2402 - Roman letter inscriptions.

K2405 - c 1961, START with new advance mechanism and lever.

K2406 - Identical to K2405, with Roman letter inscriptions

## **START-2 c.1962-64 only a few units**

**K2410**

Impatiently awaited, this model is announced with much fanfare in the Soviet press as being equipped with a fully automatic internal diaphragm mechanism, an interchangeable finder prism with built-in selenium meter.

Only a few pieces are made

The ZENIT-E is already in preparation, the ZENIT 4-5-6 in preproduction, and the START-2 project is buried. In the Ukraine, ARSENAL presents the KIEV-10 Automat. K2411 shown opposite, is a mock-up showing two selenium cells and electrical contacts in the pentaprism finder assembly of a K2400 (???) pas du tout clair. aucun descriptif du K2411 nulle part, puis presente dans le texte du Start-2

## **START with turret lens mount c1960**

**K2450**

See following page.

## **START-3 c.1962 only a few units**

**K2430**

Start equipped with internal automatic diaphragm mechanism. Identical to the Start-2 but with no meter built in.

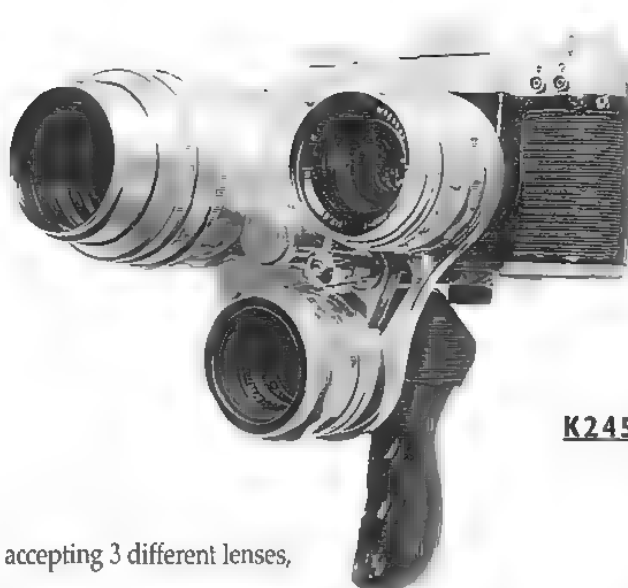
Lens is locked by means of a cursor located under the mirror housing.

Only a few pieces are produced.

Unit known is # 6200006.

## START TURRET LENS MOUNT

## ТУРЕЛЬ К СТАРТУ



**K2450**

### START turret lens mount c1960

Start with turret lensmount attached to the body, capable of accepting 3 different lenses, like the Rectaflex Rotor. (see also p. 126.)

There is no information that lets us confirm the origin of this turret.

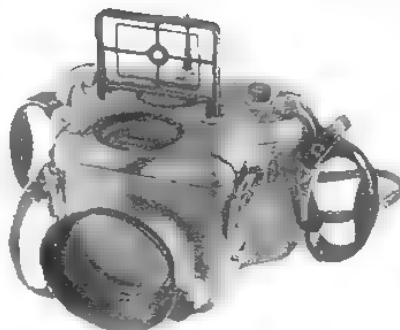
*Variant:*

K2452 : Identical turret on a Zenit-3.

**TURRET - START**

*Doc. O. Peridy*

## UNDERWATER HOUSING FOR START



**K2500 - Housing KPF  
for START**

### Watertight housing KPF

c. 1960

**K2500**

Although designed for the START, this housing is later rigged up for use with the Kristall and the Zenit-3.

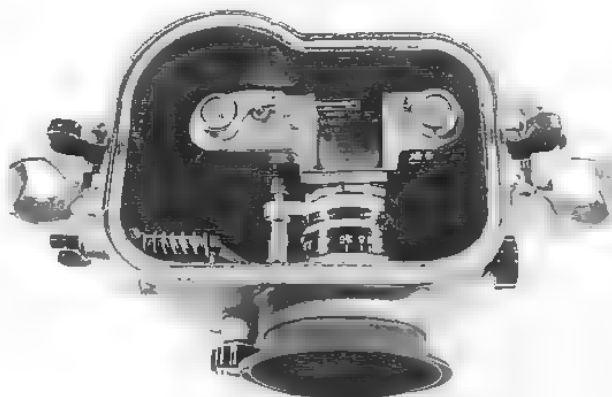
It is delivered complete with gears allowing the adjustment of f-stops and distances of HELIOS-44 and MIR-1 lenses, and a maintenance tool kit.

### Housing KPF-I

c. 1963-1966

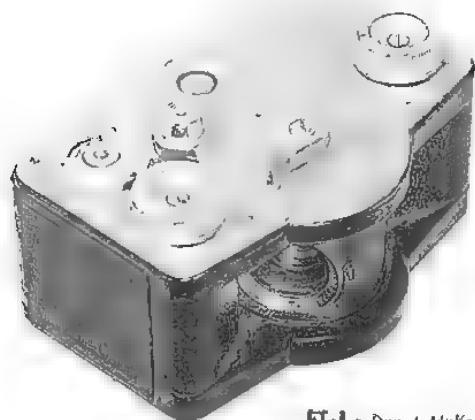
**K2530**

ZENITD especially for the Zenit-3, then to the ZENIT-E family, the KPF-1 could also be used with the START.

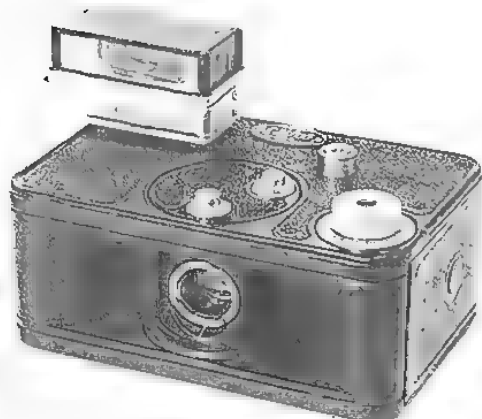


**K2530 - Housing KPF-I START version**

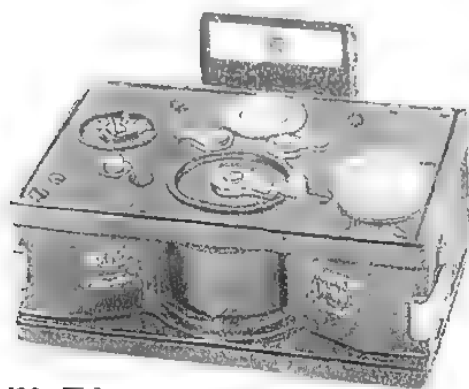




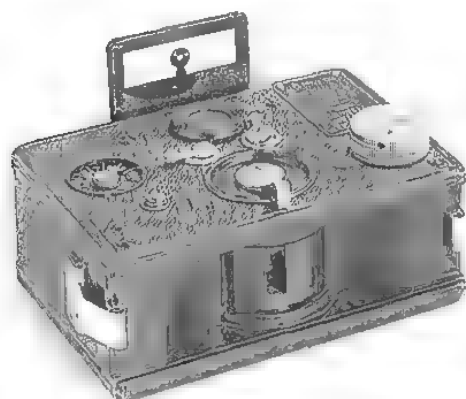
FT-1 - Doc. J. McKeown



K2610 - FT-3 - Doc. KMZ



K2620 - FT-2



K2621 - FT-2

## **FT-1 c. 1948 (a few units)**

**K2600**

**Conceived by: E.V. Soloviev, Engineer.**

Formerly at the Moscow enterprise EFTE, Soloviev participated in the concept phase of this project, originally for the military.

Panoramic. 12 views 24x102mm on 35mm perforated film.

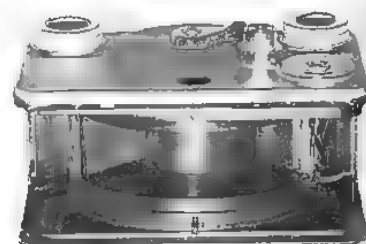
120° Angle of view.

A single (equivalent) shutter speed: 1/50s.

Industar-22 3.5/5cm lens (K335)

Dimensions: 130x90x70 mm

1030 g.



## **FT-3 1951 - 1952 (around 100 units)**

**K2610**

**Conceived by: E.V. Soloviev.**

Panoramic. 12 views 24x102mm on 35mm perforated film.

120° Angle of view.

Variable slit-width shutter; equivalent speeds: 1/25 - 1/100 - 1/200s.

Industar-22 3.5/5cm lens. Focus: 1.2m - 12m - ∞.

Removable panoramic optical finder with built-in bubble level.

*Too expensive to build, with little hope for large-scale distribution, Soloviev's project is abandoned. The old project of the very influential F. V. TOKAREV will be put into production instead.*

## **FT-2 1958 - 1965 (16,662 units.)**

**K2620**

**Conceived by F.V. Tokarev - may be around 1936.**

Originally conceived by Tokarev, the celebrated armaments engineer, to check the impacts of an artillery barrage

The camera only goes into production in 1958 and the factory offers it to the public to achieve economies of scale.

Panoramic. 12 views 24x110mm on 35mm perforated film.

Knob wind film advance from special feed to take-up cassette.

No rewind.

3 rotations of the 12-view frame counter advances 115mm of film.

Rotating drum containing the lens is cocked by a lever (known to have several shapes.)

3 speeds: 1/100 - 1/200 - 1/400s. obtained by applying friction on the drum by 0, 1 or 2 helicoid brakes. Simple but effective.

Industar-50 3.5/50mm lens, stopped down to f/5.

120° angle of view. Hyperfocal focus adjustment. Folding frame finder.

**variants:**

K2620 - on the 100 first cameras, the name FT2, the KMZ logo, and the lens specifications are engraved on the camera front.

K2621 - during the first 2 years of production, the FT2 was equipped with an adjustable brake on the spring motor, underneath the camera.

K2622 - without brake. Roman letters.

K2650 - FT2 Stretched body for use with 120 film.

*Variants were sold under several distributors' brands:*

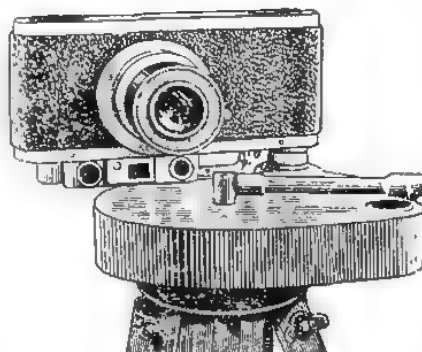
K2625 - Spiratone or Panoram by F. Spira, USA.

K2626 - Spaceview, Ets. Tranchant, France.

## Panoramic mechanism by V.I. Pachkovsky. c.1938

Consisting of a mechanical platform with 3 rotating speeds, on which a specially adapted 35mm camera, for instance, a FED, is attached. The film is exposed through the slit in the focal plane shutter, adjustable from 1 to 5mm.

To obtain a sharp image, the film is drawn past this slit in mechanical synchronization with the rotation of the plateau.



## PFA and PFA-2 Panoramic cameras by I. PETROV

**PFA - Petrov's Panoramiya Foto Apparat.**

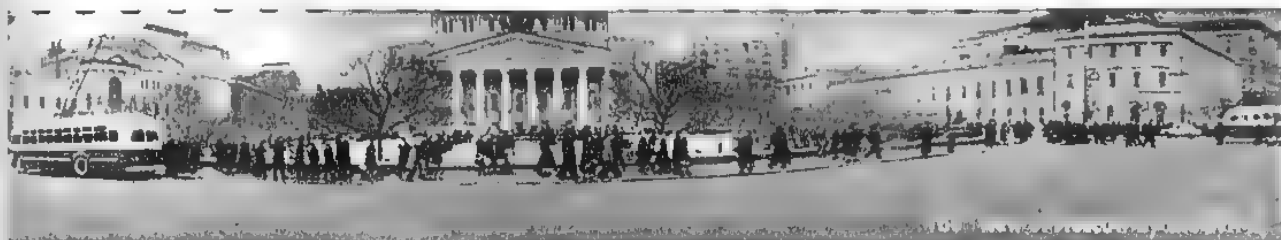
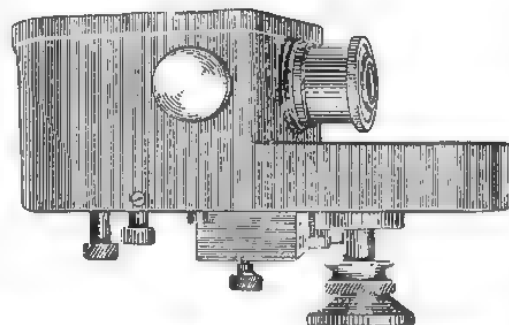
c.1946 - 1950

"PANORAMIC PHOTO CAMERA"

The film advance and the rotating mechanism are integrated on this panoramic camera with a 300° angle of view.

The lens is a 50mm FED-type unit.

Pictures taken with this camera appeared in the specialized Soviet press.

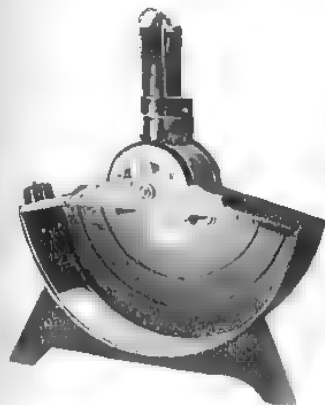


**PFA -2 c.1955 - Conceived by I. Petrov.**

The PFA-2 was revealed to the world of Western collectors in a members bulletin of the RCCC (96).

The existence of the PFA-2 is authenticated by an article written by its inventor, the engineer I. Petrov, winner of two Stalin prizes, which appeared in SoFo in 1960.

Similar in general specification to the PFA, the PFA-2 allows taking panoramic views anywhere between 45° and 360° on regular 35mm perforated film. The lens is an Industar-50 in the documentation, a FED 3.5/50mm Industar-10 in the photo.



### panoramic enlarger.

Since a 360° view with a 50mm lens measures about 300 by 35mm, it is inconceivable to make an enlargement in a standard enlarger.

A special enlarger was therefore developed to deal with the special negatives created by the panoramic cameras.

The negative is positioned in a semicircular negative carrier, and the lens carrier and enlarger head are movable. Prints made with this rig can be 5x50cm, 7x70cm, or 9x90cm.

## PANORAMIC PHOTOGRAPHIC CAMERAS

Pioneers of 35mm panoramics, the Russians today remain, with the Horizon 202, the world leaders in this category.

**HORIZON 1967 - 1973 (49,849 units) K2700**

Conceived by: E.V. Soloviev, E.N. Koutiapov and M. Valdaiev. Named in 1958 to the position of "Chief Inventor" of the R&D department, E. V. Soloviev begins work in 1965 on the Horizon. It enters production in 1967.

Panoramic, chrome metal body.

24 views 24x58mm on normal 35mm perforated film in standard commercial cartridges

45°x120° (vertical x horizontal) angle of view

Variable slit width shutter; equivalent speeds: 1/30 - 1/60 - 1/125 - 1/250s.

Full 120° sweep: 1/4s.

OF-2.8/28mm lens Focus fixed at hyperfocal distance.

Removable panoramic optical finder with built-in bubble level. delivered with ergonomic grip and filters

### Variants:

K2701 - 1/250s speed not marked.

K2702 - under the distributor's brand: GLOBAL-H.

K2703 - under the brand of the German distributor, Foto-Quelle: REVUE (c. 1969)

K2703 - under the brand of the German distributor, Foto-Quelle: HORIZONT REVUE (c. 1969-70)

K2705 - Black body assembled by "KMZ" c. 1994, with the turret and lens of the HORIZON-202. (fewer than 20 units)

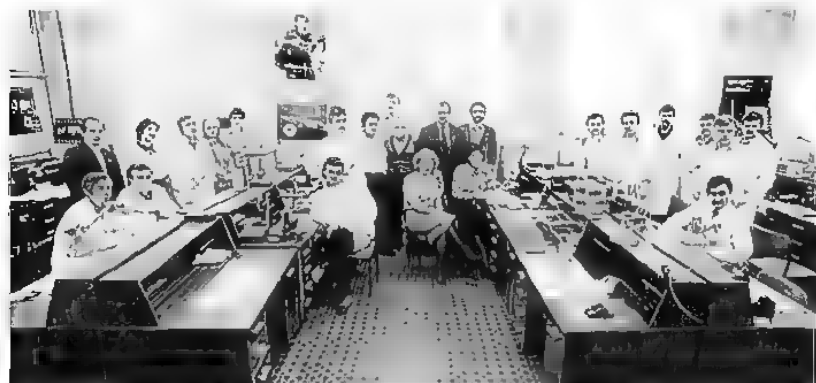
### Accessories:

- set of clip on filters;
- leather carrying case.



K2700 - Horizon (t)

K2702 - Horizon GLOBAL-H  
Duc J. Daniel



The Horizon workshop is a specialized cell within KMZ which was responsible initially for the development of the Horizon 202, then for its series production under the supervision of a single person. Only one requirement: Zero tolerance. To improve the profit picture, assembly is now done on an assembly line which cannot, unfortunately, guarantee the same quality as the workshop did. In the center, P. A. Tikhomirov and N. Tarassov.



Assembled carefully specialized technicians, the Horizon 202 was delivered with a zero rejection rate.



## **HORIZON 202 1989 - 1999...**

**Conceived by P.A. Tikhomirov** (see p.137).

**Project chief: N. Tarassov**

The HORIZON 202, descendant of the HORIZON of the 1970's, remains KMZ's jewel in the crown of the Russian photographic industry in the post-Communist era. Its distribution was initially entrusted to the Finnish panoramic photographer R. Lampinen under the "Technopan" label. It was hailed in 1991 as a "world premier" in East-West economic collaboration: the association of the HORIZON workshop (within the overall KMZ organization,) with MANFROTTO, world leader in photographic tripods (through the dynamic efforts of the French distributor) in a joint venture for the exclusive distribution of the HORIZON 202. For reasons associated with production difficulties, this association ceased in 1995 (see page 180).

Panoramic camera made in injection-molded ABS plastic.

As on the ZENIT-16, two shells enclose the mechanical organs.

23 views 24x58mm on normal 35mm perforated film in standard commercial cartridges.

45°x120° (vertical x horizontal) angles of view. Variable slit width shutter with two rotational speeds, set by lever under the rewind knob.

Slow range equivalent speeds: 1/2 - 1/4 - 1/8s. (full sweep 5 sec.)

fast range equivalent speeds: 1/60 - 1/125 - 1/250s. (full sweep 1/4s.)

Speeds and diaphragms set by levers on top of the turret.

Lever wind and cocking of the rotating drum.

Optical viewfinder with bubble level! derived from Horizon finder, but in the optical axis and non-removeable.

2.8/28mm MC lens. Focus fixed at hyperfocal distance.

**Variants:**

**K2721** - 1990 - **TECHNOPAN**, MC High Resolution Pan 2.8/28mm lens; with 8 speeds: 1/2s. to 1/250s.

**K2722** - 1991 - No name-202, ZENIT inscribed inside the opening back; H. R. Pan 2.8/28mm lens; 8 speeds.

**K2723** - 1991 - ZENIT 202, H. R. Pan 2.8/28mm lens; 8 speeds

**K2724** - 1991 - HORIZON 202, Cyrillic characters; 8 speeds.

**K2725** - 1991 - HORIZON 202, Roman letters; 8 speeds

**K2726** - 1992 - HORIZON 202, Roman letters; MC 2.8/28mm lens; 6 speeds

**K2727** - 1992 - HORIZON 202, special series "50th anniversary of KMZ" titanium body, individually dedicated (12 units made.)

**K2728** - 1992 - HORIZON 202, with "PANORAMA" silk screened on the body in Roman letters. this is the production version.

**K2729** - 1995 - No Name - body in polished aluminum.

**K2730** - 1995 - HORIZON 202 painted body panels. (several colors offered, including camouflage.)

**K3740** - 1998 - Improved version of the 202 with **silent slow speeds**.

Announced at Photokina, then at PMA. (Popular Photography May,1999 p.142). (HORIZON S3, 203 or PAN/ART S3).

**Accessories:**

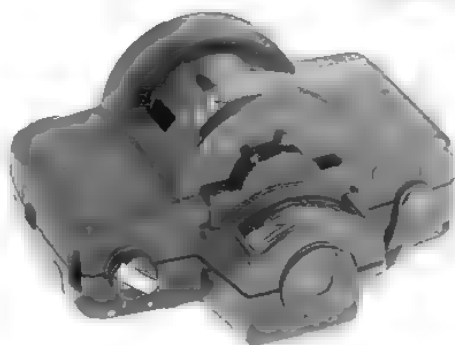
- Set of filters (contained in the grip) - variable density filters (rare.)

- close-up lens for 2.5m fixed focus (rare.)

**K2720**



Horizon -202: K2727 and K2722



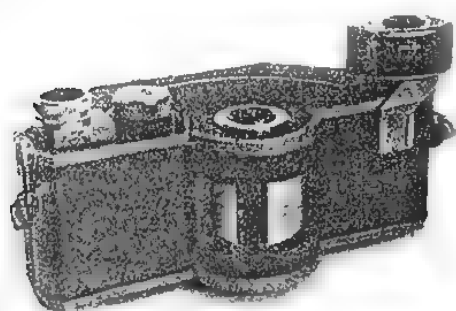
K2723 - Horizon -202



K2728 - Horizon - 202 "PANORAMA" Production version

# HORIZON 6x15

# ГОРИЗОНТ 6x15



## HORIZON-6x15

c. 1980

K2800

Unknown inventor.

The camera is presented in Sov. Foto.

This large panoramic camera taking 6x15cm images is equipped with the excellent Industar-58 3.5/75mm lens, as used on the Iskra.

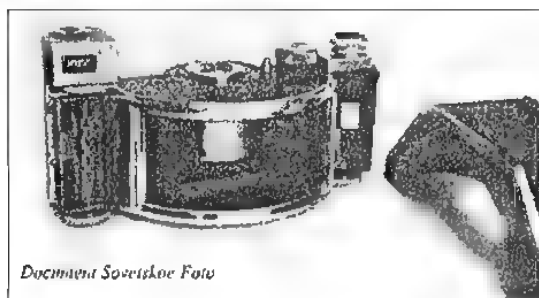
Rotating slit shutter, of course, with equivalent speeds 1/30s - 1/500s; same controls and viewfinder as the Horizon.

Rotating drum has a diameter of 79.5mm, and sweeps 120°.

Shutter cocking and film advance by two individual levers.

Fully removable back.

Dimensions: 218x124x119mm.



*Document Sovetskoe Foto*

# HORIZON 6x12

# ГОРИЗОНТ 6x12

## HORIZON-6x12

c. 1980

K2802

Unknown inventor, perhaps an individual effort of a talented KMZ worker.

6x12cm version of the Horizon 6x15cm, this camera appeared at the Bièvres photo fair.

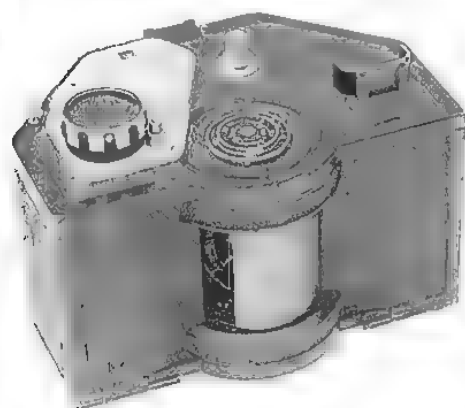
Similar specifications to the 6x15, but film advance and shutter cocking now coupled together.

The back is attached to the (recommended) tripod, and the camera body now rotates forward on a hinge for film loading.

Lens: 4.5/75mm.

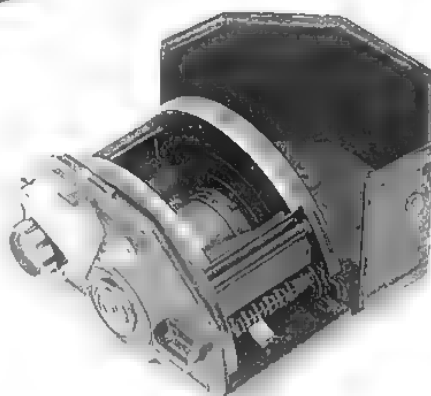
This Horizon 6x12, with its understated esthetics, is very comfortable and stable in the hands and has exemplary level of finish.

The little logo on the lower left of the body might have indicated KMZ's intention to export the camera (?)



## HORIZON 6x12

*Dir. R. MILCZAREK*



# FT2 6x12

# ФТ2 6x12

## FT2-6x12

K2650

Unknown inventor, probably an individual effort of a talented KMZ worker, possibly the same as above, and possibly outside normal working hours.

6x12cm version of the FT2, with a stretched back, made in injection-molded aluminum (which therefore needed a mold!) to take 120 rollfilm. Curiously, the lens is a Zeiss-Kraus Paris 4.5/75mm #87903 (indicating that it was made between 1905 and 1910!!!)

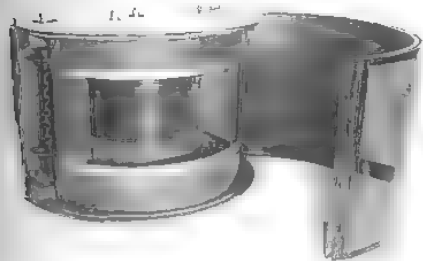
# Panoramic camera

## PANORAMIC-6x14

**K2803**

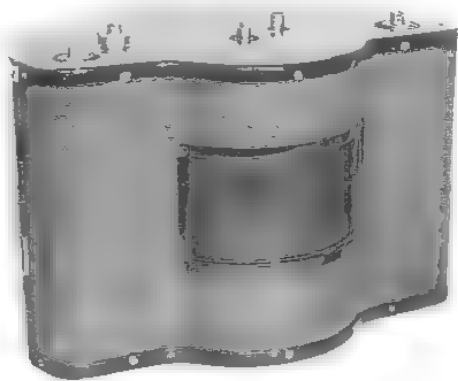
**Conceived at KMZ ??? or LOMO ??? or...**

Prototype camera of unknown origin, machined out of aluminum. T-22 4.5/75mm (Lubitel) lens; shutter assembly included to allow diaphragm adjustment.



Format: 55x137mm.  
Dimensions: 185x125x117mm.

# ПАНОРАМА ФОТО АППАРАТ



Horizon ? Doc. M.P. Mladek

## HORIZON 205PC

### HORIZON-205PC

**c. 1992**

**K2805**

**Conceived by P.A. Tikhomirov** (see p. 137).

**Project chief: Nicolai Tarasov.**

Logical follow-up of the Horizon program, the HORIZON-205PC (PC in Roman letters) is designed from the ground up as a professional camera, for architectural and landscape work **where lens rise is required.**

In Krasnogorsk in 1992, the author participated in the selection of the technical specifications among the solutions that were offered. One of the prototypes, shown here, was tested at the request of Manfrotto-France by B. Ancelot, a Parisian professional photographer, expert in panoramic images. The results were worthy of the wait; despite being somewhat bulky, the camera delivered absolutely exceptionally sharp images.

6x12cm (nominal) format, in reality 5,2x12,2cm. 6 views on 120 rollfilm.

lever wind / film advance. 3.5/50-1PC lens (#940005)

**Variants:**

K2800 - Prototype (machined body)

K2802 - Model shown at the 1994 Photokina, with knob advance instead of lever, and smaller top assembly.

## ГОРИЗОНТ 205PC



Horizon 205 prototype. 1992

Doc. N. Tarasov

### HORIZON-205PC

**K2806 / K2808**

**Conceived by P.A. Tikhomirov.**

**Project chief: Nicolai Tarasov.**

The new version of the Horizon-205PC is shown at the 1998 Photokina at the SILVESTRI booth. Silvestri is a well-known Italian maker of large format cameras for architecture and reportage. The camera shown was supposed to be the "production" model.

Still equipped with the 3.5/50mm "MC" lens, (#940002! - giving 75 line pairs in the center and 48 line pairs at the edge of the field), and with speeds: 1 sec, 1/2, 1/4, 1/8, 1/30, and 1/60s. It has a special panoramic finder with built-in bubble levels for both horizontal and vertical work, and a tripod socket specifically designed for vertical views.

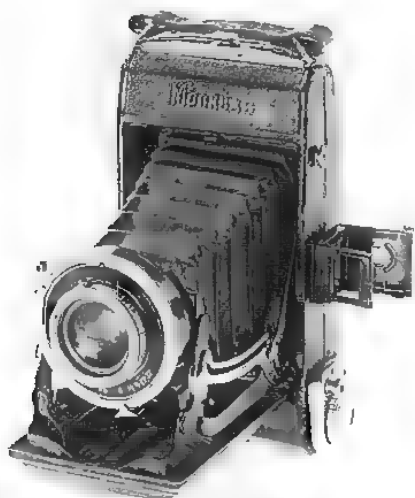
The body is in matte black finished aluminum alloy, with even better level of finish. It seems to function perfectly, including the rising lens function. Image format is slightly reduced (5x11cm) and control of film curvature is perfect.



Horizon 205PC .1994

Doc. B. Ancelot

In 1946, KMZ is still incapable of creating a camera from the ground up. Thus it is only by building cameras from sub-assemblies that has originated at ZEISS IKON (p. 121), assisted by "German labor" that the factory rapidly succeeds in producing the MOSKVA-1 (Moscow-1) followed by the MOSKVA 2. But the stock of original parts is quickly exhausted and even though the transitional production shows some rough edges, the quality is improving from day to day. From 1948 on, just as with the FED-ZORKI, the Moskva-1 and -2 can hold their own against their foreign rivals.



K3000, Moskva-1

## **MOSKVA-1 1946 - 1949 (31,632 units.)**

**K3000**

First camera produced in quantity by KMZ.

6x9cm folding camera, 8 views on 120 rollfilm, made with Zeiss tooling from parts originally created for the Zeiss Ikon NETTAR or IKONTA (66)

Folding Galilean finder

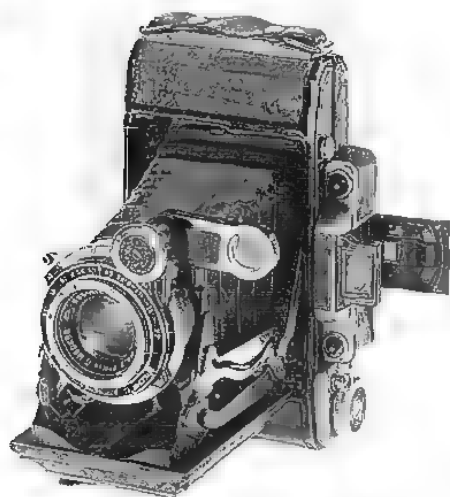
Initially with Compur 0 shutter, later a home-built copy. Speeds B; 1-1/250s.

Industar-23 4.5/11cm uncoated lens with, at first, the early KMZ logo and MOSKVA engraved on the identification ring (like K330).

MOSKVA-1 embossed in the leather on camera front, KMZ logo repeated on the back. The serial number is engraved u=inside the opening back, with the "tomb" logo underneath. Camera shown is #4809007 with inscription "Moskva, Model 1 - 6x9cm stamped into the pressure plate.

Variant:

K3001 - MOSKVA-1, body covered in brown artificial leather.



K3010, Moskva-2

## **MOSKVA-2 1947 - 1956 (197,640 units.)**

**K3010**

6x9cm folding camera, 8 views on 120 rollfilm, made with Zeiss tooling from parts originally created for the Zeiss Ikon SUPER IKONTA 6x9 (530/15)

Folding galilean finder and coupled rangefinder.

Compur-0 (rare) or Moment-1 shutter. Speeds: B; 1 - 1/250s.

The shutter serial number is engraved just like it is on a Compur.

$\pi$ -coated Industar-23 4.5/11cm lens, 52° angle of view. Engraved MOSKVA with the first logo until 1951, then with the classic logo.

The model indication MOSKVA-2 is found only on the pressure plate, and serial number is still on the inside of the opening back.

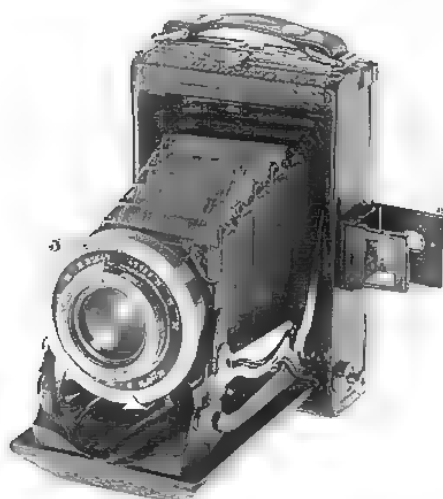
On the example shown, the serial number #5100936 is written above the standard KMZ logo, and the lens has the "tomb" logo. (see p.82).

Dimensions: 165x95x48mm 850g.

Variants:

K3011 - MOSKVA-2, green artificial leather covering

K3012 - MOSKVA-2, reddish-brown artificial leather covering.



K3020, Moskva-3

## **MOSKVA-3 1950 - 1951 (11,385 units.)**

**K3020**

Folding camera for plates or sheet film 6.5x9cm.

Opening mechanism and bellows identical to those of MOSKVA-1, cleverly transposed into a cast metal body that takes a removable ground-glass focusing panel. Backs and body chassis are numbered identically.

Folding Galilean finder.

Moment-5 shutter, Speeds: D, V; 1 - 1/250s.

$\pi$ -coated Industar-23 4.5/11cm lens, with MOSKVA and KMZ logo engraved.

MOSKVA-3 embossed in the artificial leather covering, on front and back.

delivered with 6 6.5x9cm cut film holders and cable release in a small carrying case.

Dimensions: 140x90x55mm 650g.

# MOSKVA 4-5

# МОСКВА 4.5

## **MOSKVA-4 1955 - 1958 (62,632 units.)**

**K3040**

Identical to the MOSKVA-2, but bi-format.

6x9cm folding camera, 8 views on 120 rollfilm, with format reducer to 12 views 6x6cm.

Folding galileian finder and coupled rangefinder.

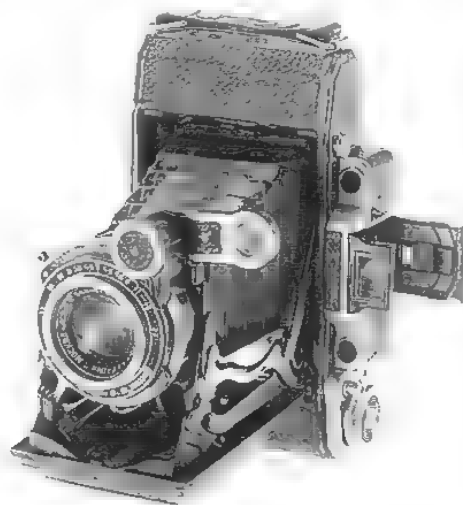
Moment-23S shutter (FZ23S) Speeds: B; 1 - 1/250s; synchronized

Industar-23 4.5/11cm lens (145)

Variants:

K3041 - Injection molded body casting (based on experience acquired with the Zorki-1c). The bodies of the MOSKVA-1, 2 and 4 at the start of production were in stamped aluminum panels.)

K3045 - MOSKVA-4 with MOSKVA-5 top. Bi-format. c1957



**K3040, Moskva-4**

## **MOSKVA-5 1956 - 1960 (216,457 units.)**

**K3050**

Significant evolution of the MOSKVA-4. Injection molded aluminum alloy body; very good finish level.

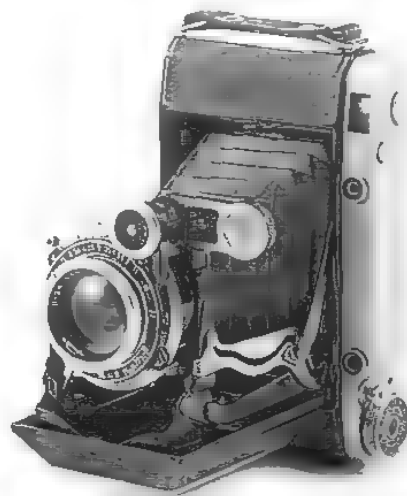
6x9cm folding camera delivered with 6x6cm format reducer.

Galileian viewfinder and rangefinder incorporated into a streamlined matte aluminum top plate. Extended rangefinder base.

6x6 frame lines in finder, with selector switch on camera top.

Moment 24S (FZ24S) shutter. Speeds: B; 1s - 1/250s. synchronized. Self Timer

Industar-24 3.5/10.5cm lens



**K3050, Moskva-5**

## **MOSKVA-"6"**

**K3050**

Variation of the MOSKVA-5 delivered with two format reducing masks.

Three frame counter windows appear on camera back, one for each format.

No certainty whether or not this version was ever produced.

# YOONKOR

# ЮНКОР



**K2180 - YOONKOR**

Document KMZ

*This is one of those cameras that the Russian engineers maliciously label "a Plan camera." They were aimed at the youth market, easy to design and make, and could easily catch up the numbers on sagging production figures, thus helping achieve goals imposed by the 5-year plan.*

## **YOONKOR 1959 - 1962 (168,836 ex.)**

**K2180**

"JUNIJ KORRESPONDENT" - "YOUNG PRESS CORRESPONDENT"

Bi-format 6x6 / 4.5X6cm camera using 120 rollfilm, made out of bakelite.

Removable format mask. Galileian viewfinder

Single speed sector shutter: 1/60s. Monocle 8/65mm lens.

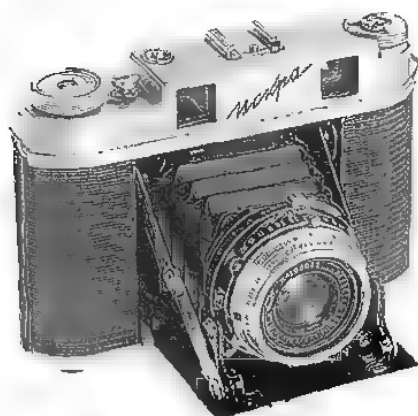
Variants:

K2180 - Dark red Bakelite.

K2181 - Black Bakelite.

*For the Bakelite lover, this is a pretty camera, simple but fairly difficult to find in good condition.*

Inspired by the 1954 AGFA SUPER ISOLETTE (the SUPER SPEEDEX in the USA), the ISKRA bears the name of the clandestine marxist newspaper created by Lenin in 1900.



K2160 - ISKRA

**ISKRA 1960 - 1963 (38,722 units.)**

**K2160**

"SPARK" N°6100062

Horizontal 6x6 folding camera for 120 rollfilm, with coupled VF/RF. FZCh-18 (FZW-18) central shutter. speeds: B; 1s - 1/500s. Synchronized manual shutter cocking.

textured film advance knob with automatic frame stops for 12 views. Industar-58 3.5/7.5cm lens with front element focusing.

*The ISKRA is a camera with exceptionally smooth operating controls. Fitted with a very high quality lens, especially for B&W work, the ISKRA remains a camera favored by such Soviet greents as G. Lukinova (see p.III) and R. Ostrovskaja.*



K2170 - ISKRA-2

**ISKRA-2 1961 - 1964 (6,118 units.)**

**K2170**

Version of the ISKRA with uncoupled built-in meter  
Same technical specifications as K2160.

*Variant:*

K2175 - Microscope version of the ISKRA-2.

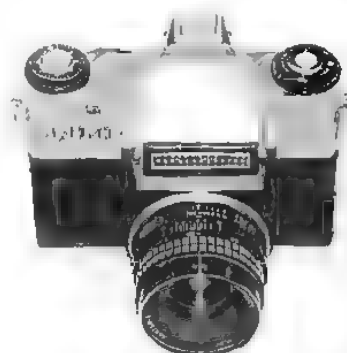
The bellows is replaced by an adapter plate for use with a compound microscope.

## ZENIT-70

## ЗЕНИТ-70



Prototype ZENIT-70 # 000001  
KMZ Museum Krasnogorsk.



**ZENIT-70 late 60's Prototype # 000001.**

6x6cm SLR using 120 rollfilm.

Non interchangeable pentaprism viewfinder with uncoupled selenium light-meter on front of prism housing.

Control knobs for cocking, advance, metering and rewind borrowed from the ZENIT-E (including a 36-view frame counter!)

Focal Plane Shutter (?) without any apparent control elements.

LANTHAN-1 2.8/75mm lens

The FOTON represents the second attempt in the USSR to produce a camera using instant film. Developed at Krasnogorsk this time, this "Pola-Russ" uses the same general design as its predecessor, the MOMENT that had once been ready to go to production but of which only 1839 copies were made before they realized that they would never get the film chemistry right.

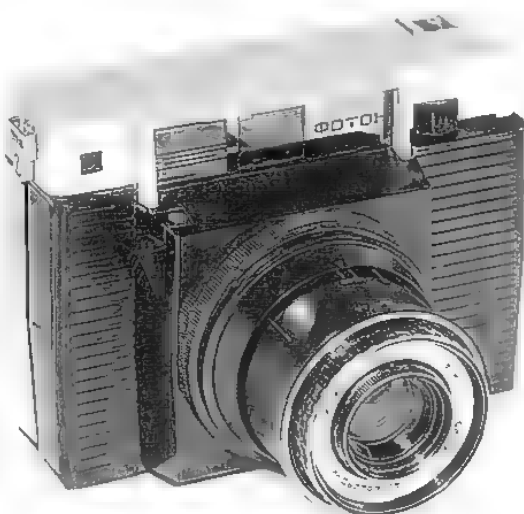
The FOTON remains a large camera full of interesting features, but ultimately... useless. In 1990 the American firm POLAROID signs an agreement with the Ministry of Atomic Energy and Industry to produce its film "Polaroid Supercolor 635CL" in Obninsk and to allow its distribution by Svetozor in Soviet territory. (see p. 246)

## FOTON c.1969

**K3150**

Instant development camera, format: 73x96mm. Coupled VF/RF, with parallax corrected bright frame. Distance settings by symbols visible in finder. Central shutter; Speeds: B; 1/30 and 1/125s. shutter cocked independently

- Industar-77 4.8/120mm lens (on cameras #120 and #212).
- Industar-77 5.6/120mm lens (on camera #974).



**K3150 - FOTON** Doc. KMZ



**K3160 - FOTON-M** Doc. Catalogue edition URSS

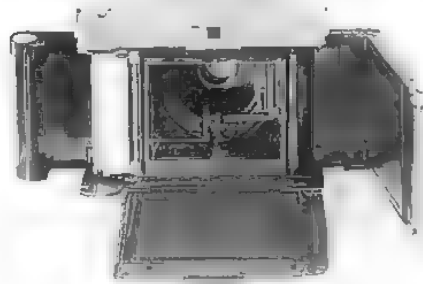
## FOTON-M c.1970

**K3160**

Identical to the FOTON, with coupled (?) selenium meter.

Probably a demonstration model, the meter is from a ZENIT-E.

- Industar-77 5.6/120mm lens (on camera #129).



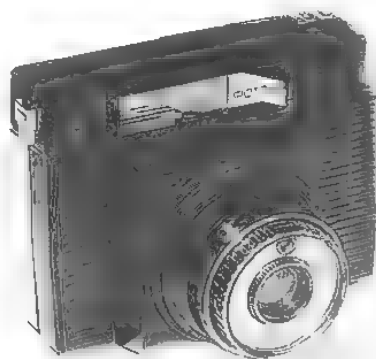
The entrails of the monster

## FOTON-2 c.1973

**K3170**

Identical to the FOTON and FOTON-M, but with a CdS lightmeter in the lens barrel. Once the diaphragm is set, the speed is set automatically.

- Industar-77M 8/120mm lens (on camera #003).



**K370 - FOTON-2** Doc. KMZ

## FOTON-3 c.1975

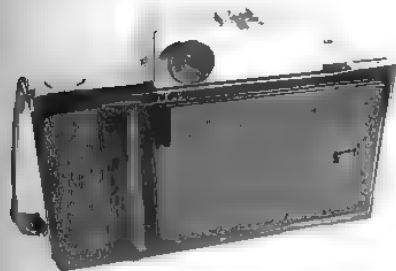
**K3180**

While continuing to use the focusing mount/lens/shutter assembly of the FOTON, the body of the FOTON-3 is entirely redesigned.

It seems to be inspired by its American contemporary and the viewfinder is rather reminiscent of the one Zeiss Ikon supplied to Polaroid...

Film speed setting cursor from 65 - 2000 GOST.

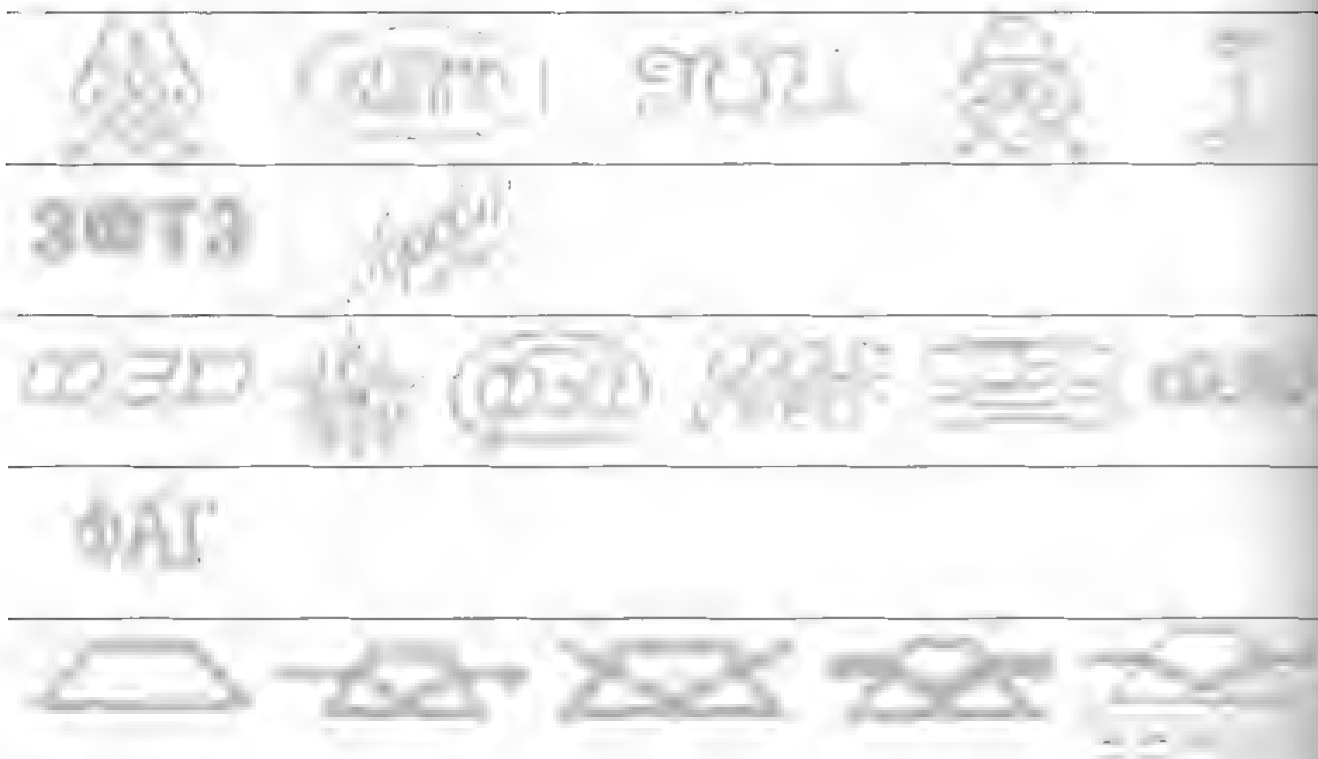
- Industar-77 5,6/120mm lens (on camera #7305).



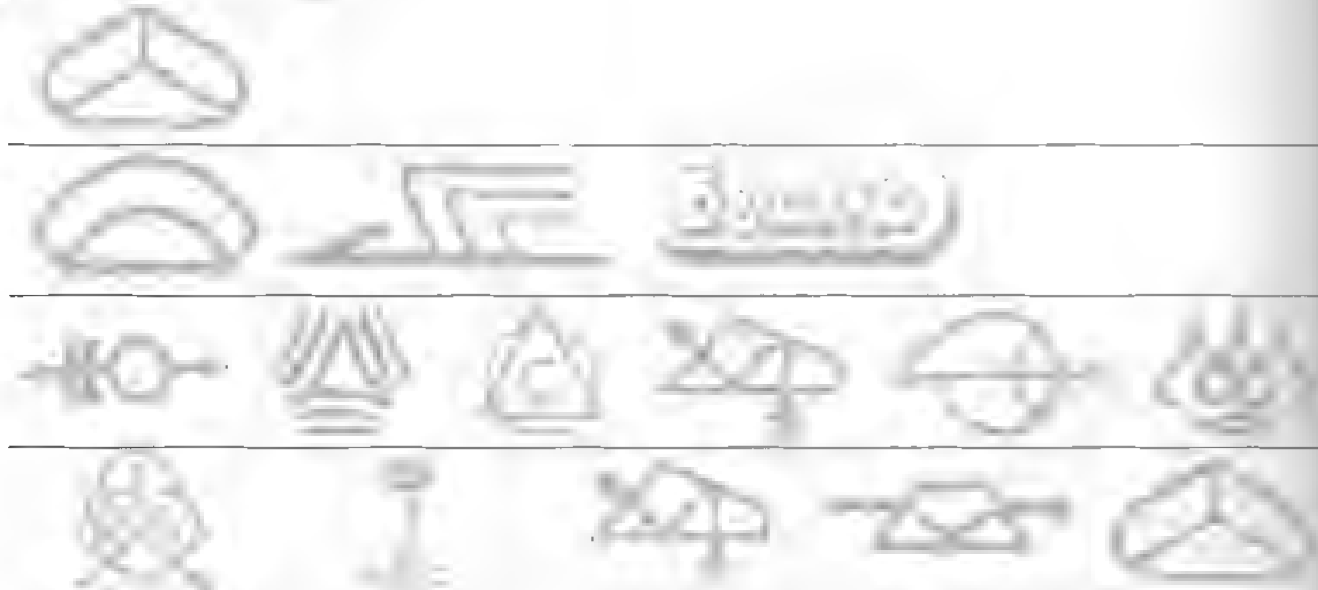
**K3180 - FOTON-3**

An internet site presents other, more recent, models of the FOTON ((Foton-Pak, Foton-OS, Foton OS80, Foton Automat, Foton UFM, S-23 and Super).. All this makes for a lot of variations of a camera which, in the final analysis, with never sold because no film was available.





**МИНИАТЮРНЫЕ, ВОЕННЫЕ  
 И ДРУГИЕ ОСОБЫЕ КАМЕРЫ**



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## Subminiatures, military cameras and other quite special cameras

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МИНИАТУРНЫЕ, ВОЕННЫЕ И ДРУГИЕ ОСОБЫЕ КАМЕРЫ	190	Subminiatures, military cameras and other quite special cameras
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# Subminiatures, military cameras and other quite special cameras

As I mentioned in the previous edition of this book, whenever the subject of "special cameras" came up during my trips to the Soviet Union, I repeated what (translated by Valia) became a mantra.

*"... that military, police, space or ... very special cameras did not enter into the purview of my research, which was focused on production cameras aimed at the amateur and mass markets."* This litany, presented in the style of an incantation and polished by frequent use, had a soothing effect on the people I was talking to. But carefully enunciated, this phrase was, in reality destined for the big ears of the paranoid bad guys in trench coats who, affected by "espionitis", wouldn't have hesitated to give us a free one-way ticket to the Siberian Gulags.

I mean, really. Imagine this French troublemaker, pretending to be a "historian of technology" knocking at the doors of the greatest military-industrial-optical complexes of the ex-USSR to politely but directly ask for the production figures of the enterprise.

In any country this type of information is kept confidential. In the ex-USSR even the simplest statistics were classified "Top Secret." You can imagine their reaction when we asked about military equipment, police cameras or devices destined to be used by KGB spooks and other shadowy characters!!!

So out of concern for our own safety our reaction was simple: nothing at all on cameras involved in the "secret defense of the Soviet Union."

Nevertheless Valia and I were able, in normal interviews, to glean some incidental information to add some "spice" to this edition, without which it might become a simple "catalogue raisonné." From time to time in a conversation, meticulously translated by Valia (106), a bit of information would pop up about a camera with a micro-motor, or some special viewfinder system. Occasionally a technical discussion would give rise to a sketch, often a very explicit one.

With the advance of Glasnost, the welcome reserved for guests at the factories became warmer, and our correspondents became notably more relaxed in our interviews.

And we discovered a common ground. we needed the knowledge contained in the memory banks of our hosts, and they wanted to get our impressions about our own western markets. So the F-21 no longer had any secrets we didn't know about - uses, models, variants, etc.... and its place of fabrication: KMZ. Most Soviet miniatures were made in this gigantic enterprise for military and civilian optics. This took place in the dark shadows of some out of the way workshops, and involved some talented, often inspired individuals.

The first miniature to appear on the collector market when these things were "reputed to be ..." was the "real fake" John Player

Special, in a fake real pack of John Player cigarettes with, within its painted metallic enclosure, a Kiev-Vega (see pp. 220/1.) Our mistrust of this "fake" camera made the Russians laugh - the F-21 was the one that came afterward. This time it was not a fake at all.

I think I was lucky enough to see in London, in the collected hands of David Lawrence and Toby Whitfield, one of the first F-21 cameras available for inspection. We were impressed, and our astonishment was, at that point, based only on premises. Because soon began the avalanche, falling from the closets and shelves of the main building located on F. E. Dzerzhinski Square, all sorts of weird equipment: the S206, the "S252-Totchka or KGB cravat-camera," etc. first just the cameras, later accompanied by their accessories and disguises, all helped by the sudden and unexpected fall of the communist state.

Therefore, without any complexes, in 1992 KMZ displayed in its showcases dedicated to the 50th anniversary of the firm, the camera that was the renowned F-21, with its accessories.

At Photokina 1994 KMZ exposed the F-21 and the models that came after it, all marked with the logo of the Krasnogorsk factory.

The "Kommittee" (KGB) no longer being a buyer of this model, KMZ is in the obligation to propose it to "spies" from other countries.

No shame here, is there?

But we hadn't seen everything yet. Since that time it seems like the country is clearing out everything you can stick a lens on. Our astonished and greedy eyes now fix on such quantities of these little masterpieces, highly technical devices designed to copy, to record, to film, to photograph, to reproduce... that, looking back, we get the feeling that we were under constant and individual surveillance by a large number of sbirni of the Soviet state.

What, me paranoid?? Not on your life!

Thus those fanatics of collections of miniatures will find numerous fields for further investigation and new reasons to go broke saving money acquiring spy cameras whose prices vary inversely with the size of the item under consideration.

It is also to pay homage to the creators of these superb mechano-optical realizations - who can remain insensitive to these devices built with such remarkable precision? - as much as it is to orient the iconomechanophiles, specialized in the field or not, that Valia and I present to you a few "subminiatures and some very special military and other cameras. . ." And in the fervent hope that we may receive the pardon of the forces of darkness from the country whose products we glorify here.

More than anywhere else the leaders of the young Soviet Union developed, as soon as they attained power and to a degree approaching perfection, what are politely known as information services. They became past masters of this art, both within the country and outside it.

And if, beginning at the end of the twenties, the Soviet state obliged its nationalized optical concerns to become totally independent of foreign suppliers, it is also to develop, for its own needs, those "special" instruments, high performance, discreet

and effective, needed to photograph, to film, to record everything that might be useful to this police state. This was done to help accelerate research into many fields at the lowest cost, certainly, but also, just as certainly, to make the lives of many individuals a great deal more miserable.

The MICROREFLEX presented below may just be one of those cameras.

## MICROREFLEX

**Conceived by V. Bogdanov. c.1955 (?)**

SLR taking 100 - 120 (depending on the thickness of the film stock) images 10x14mm format on 16mm film.

Frame counter marked to 130.

Film advance, shutter cocking, and shutter release all done simultaneously by pressing on a single button.

Metal focal plane shutter, probably guillotine type.

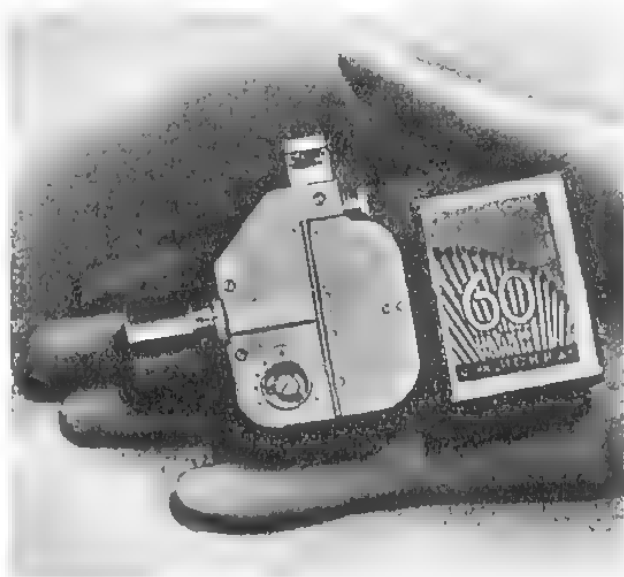
Speeds 1/10s - 1/100s.

the number of shots in sequence depends on the agility of the finger performing the action...

designed for several views a second...(!)

1.5/20mm lens. 50° angle of coverage

Dimensions: 50x46x26mm - 186g.



## MINOX RIGA "MADE IN USSR" 1940

**Valsts Electro-Techniska - Riga. Latvia. (Lettonie)**

**Conceived by Walter Zapp - 1937**

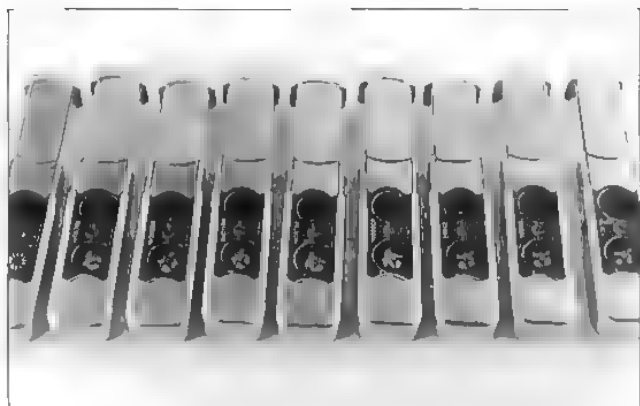
The MINOX may not be considered, by any stretch of the imagination, a Soviet camera.

However, it's a mystery to no one that a series of MINOX cameras received the engraving "Made in USSR" starting with the occupation of Latvia by the Red Army in the summer of 1940.

The original MINOX, also called the RIGA MINOX engraved "MADE IN USSR" is present in this book only in order to recall this sad historical event. (102)

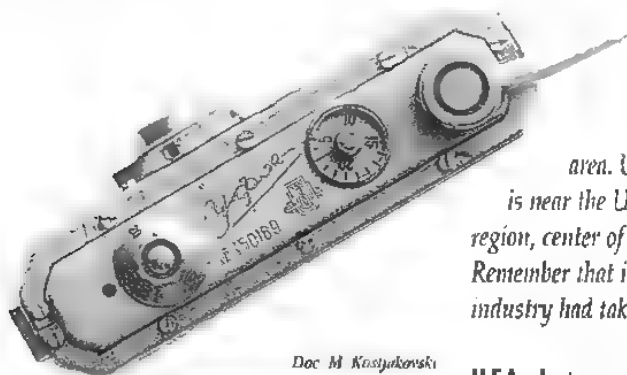
**MINOX - Wetzlar. Germany. 1948 until the 1980's.**

The MINOX A and B (and their accessories), made from 1948 to the present day are by any account the cameras most used by operatives of "information services" of all shapes, sizes and orientations.



That which is proven for most of the secret services of most of the world's countries is probable for their counterparts in the Soviet Union. Just like everybody else, despite their very own national production.

This constitutes a further reason, certainly less "historic," to present in these pages this paragon of the photographic industry. It is all to the honor of the Wetzlar manufacturer.



Doc. M. Kostjukovski

This mysterious miniature camera was featured, in 1994, on the cover of the mail order catalogue of "Classic Collector No. 7."

David Lawrence, a specialist in micro-format cameras, presented it as being a submini of the Secret Service, made in UFA, in the Ural area. UFA, the capital of the ex-autonomous republic of Bachkiria (see p. 12), is near the Ural border, not far from Kazan (see p. 120) and the Magnitogorsk region, center of Soviet heavy industry. Remember that in 1941 after the Nazi invasion of the USSR, virtually all Soviet industry had taken refuge in the Ural region or in Siberia.

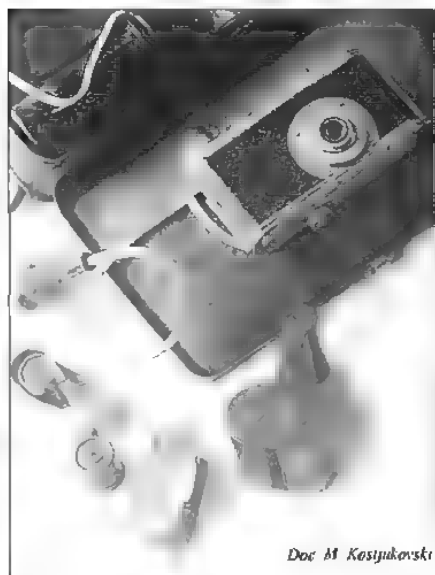
## UFA . between 1945 and 1950

The name of the UFA subminiature is engraved on the top plate above the logo of (what we think is) the maker and the serial number (e.g. 450186. (The same logo appears inside the body of the M-F, ancestor of the F-21.) (114))

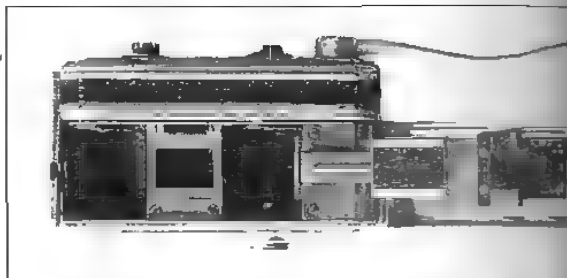
A touch of the electric release button also cocks the shutter and advances the film. The camera is thus always ready to take a picture.

1/10s - 1/100s. shutter. (the setting ring bears an uncanny resemblance to the one on the Minox.)

2.7/20mm lens. Delivered in a box marked UFA, with a template for trimming 35mm film to size, and a set of cartridges, looking a lot like the future cartridges of the Narciss.

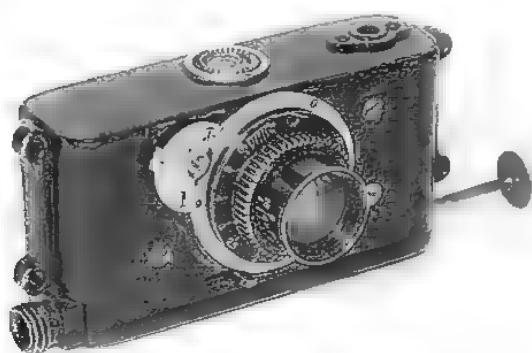


Doc. M. Kostjukovski



# M-F

# М-Ф



Doc. A. Berry

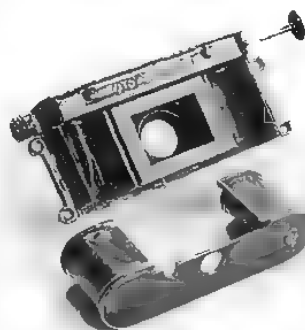
## M-F c. 1950 (102)

Subminiature camera taking 18x24mm pictures on 21mm film, cut down from normal perforated 35mm film, a technique later used on the F-21. No viewfinder. Aluminum injection molded body with double strap lugs located on the ends of the body to allow discreet use, either at chest or at waist level.

Removable back. Double cartridge film system (see p. 193.)

Shutter cocking and film advance by pushrod. Sector shutter. Speeds: 1/10 - 1/30 - 1/100s

The threaded lens mount is the same as that of the M-F and the F-21.



Doc. M. Kostjukovski

"interchangeable" magazine and removable back of the M-F. You will note how faithful to the original concept of the M-F the makers remained through improvements applied to successive models.



# MF-1/ F-21

# MФ-1/ Ф-21

## Maloformati Fotoapparat MF-1

## Малоформати Фотоаппарат МФ-1

**MF-1 c.1950**

**K4000**

Spring motor (Robot type) 18x24mm subminiature without viewfinder.

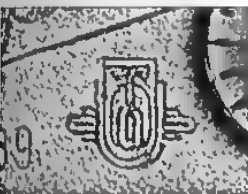
Unknown logo comprising the letters: U, T and O (?). #504765

Perhaps made in the suburbs of Sverdlovsk or of Ufa (see p. 192.)

Injection molded light alloy body with removable back.

The MF-1 presents too many points of similarity - materials used, screw placement, details and type of lensmount - with the aforementioned M-F to let us think that any but the same brains were employed in both cameras' creation.

The exceptionally smooth spring motor allows up to ten shots to be taken in virtual silence, a real "bee's whisper."



Logo engraved on the top plate of the UFA.



Logo engraved inside the MF-1.

Sector shutter. Speeds: 1/10 - 1/30 - 1/100s.

2/28mm lens, 26mm screwmount.

Support tabs are located on each side of the body to hold the camera steady.

Dimensions: 85x60x43mm

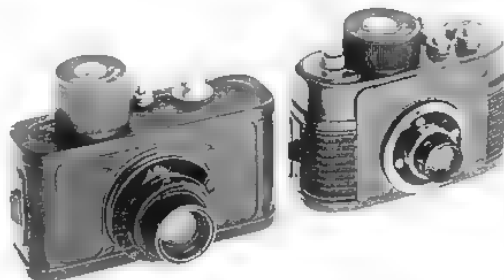
Probably made for the secret service (MGB or MVD) this cute little camera emigrates around 1950-51 to Krasnogorsk and becomes the MF-2-1, better known as the F-21 (F-2-1).

Dimensions: 85x60x43mm.

Weight: 220g.



The M-F-1 Doc. D. Scheiba



In the M-F family, I'd like the father and the son...

The serial number of this F-21 is #006007.

They must have been thinking of James Bond.

## F-21 "AJAX-12"

## Ф-21

**F-21** From the late 1950's to the present ... with and without derivations.

**K4010**

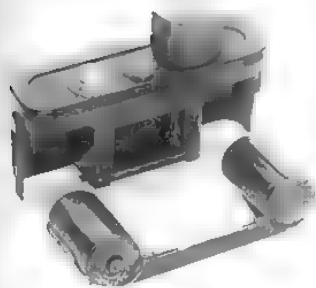
Spring motor 18x24mm subminiature, like the MF-1, still without viewfinder

For 14 pictures on 21mm film, cut down from normal perforated 35mm film.

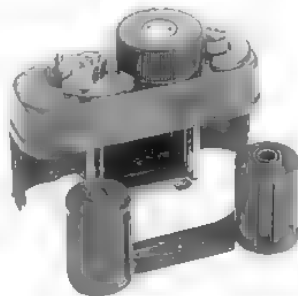
Interchangeable magazine backs.

Sector shutter.

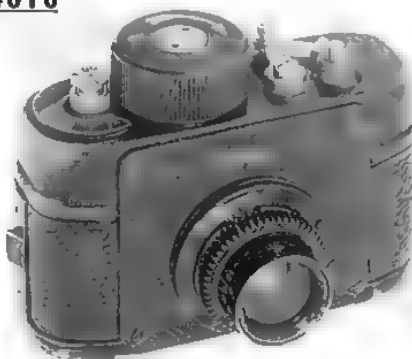
Speeds: 1/10 - 1/30 - 1/100s, selected by a cursor.



interchangeable magazine back of the MF-1



Interchangeable magazine back of the F-21



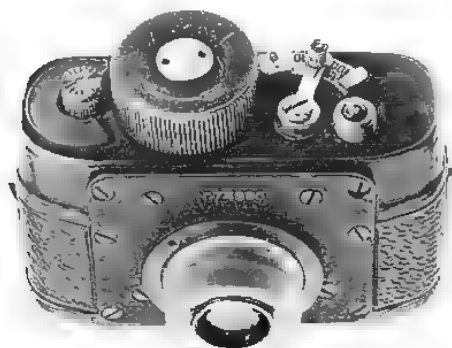
F21 équipé du 2/28mm  
Doc. M. Musy

Fixed-focus 2.8/28mm or 2/28mm lenses focused (sometimes at 4m, sometimes with KMZ logo).

Support pins on each side.

Dimensions 77x41x55mm; weight: 180g.

Guaranteed to work at temperatures ranging from -20° to +55°C (-4° - +129°F) and up to 100% humidity.



**F-21**

**F-21**, Ajax 12, and once again **MF-1** ... c.1950 à 1994

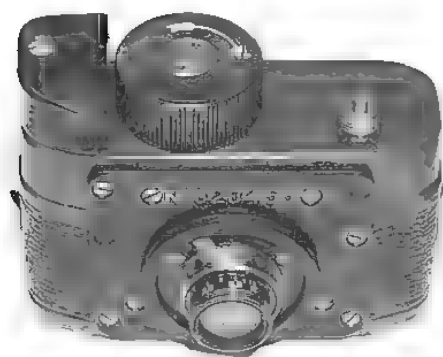
Spring motor 18x24mm subminiature, without viewfinder. (115-116-121)

Called the "Ajax 12" in some original brochures (c1962)

*Accessories for the F21:*

Delivered to your ministry in a plain brown wrapper ... (actually, I'm joking) with:

- film cutter/template
- extra film cartridges
- cable release (several models)

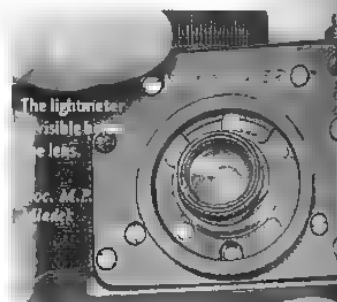


**F-21 "ELECTRONIC"**  
or "**Apparat Nailon**" c.1980

Body identical to the F-21 (above) but with silicon meter.

Aperture priority automatic shutter and the frame counter.

The bulge on the top is a housing for 2 NiCad rechargeable batteries.  
Non-interchangeable 2.9/28mm lens; 3 f-stops (2.9-5.6-16) corresponding to three filters of different densities on the meter.



**F-21 electronic** Doc. M.P. Mladek



**F-27**

Doc. M.P. Mladek

**F-27** or "**Apparat Neozit**" c.1985 to the present

Injection molded submini, without viewfinder

Top plate in ABS plastic.

12 views 24x24mm format on 27mm film.

Completely silent electric motor running on NiCad batteries located in the remote release.

Film speed setting inside the body, for film speeds: 65-150-250-500 GOST

Dimensions: 75x54x33mm (1.40)

The camera may be installed inside a Super-8 movie camera, for example, or in a lady's handbag, underneath a jacket (taking pictures through a buttonhole) but also hidden by a belt and aimed behind the user. Who would suspect someone who was turning his back?



**MA-2** c.1998

Introduced to the specialized press, and brought back to the west by this group under the name RA-2, as a camera for "microfilming" in 14.8x21mm format. The KMZ MA-2 is a fascinating evolution of the F-21 and later F-25, possessing an electronic shutter comprising two groups of three blades capable of speeds from 1/60 - 1/1000s

TTL metering with silicon meter reading off the film plane.

2.8/25mm 3-element lens.

Electronic control of all functions, identical to that of the F-27.  
operation guaranteed to -25°C (-13°F.)

**MA-2 at the 1998 Photokina.**

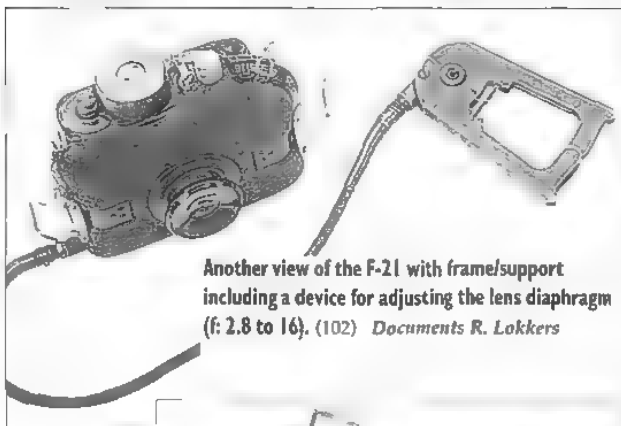


## Surveillance and spycraft equipment for the F21:

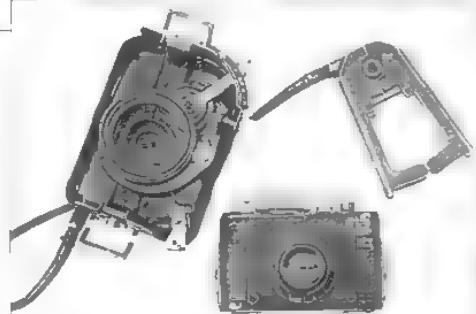
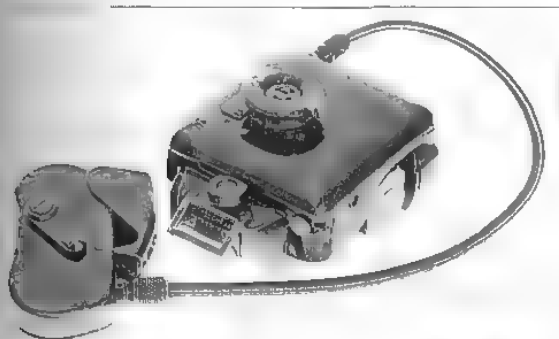
These cameras without built-in viewfinder need "magic" supports, such as:

- adjustable placement frame (several models)
- Protective nylon disk to attach camera equipped with 2.8/28mm lens to belt buckle (see p. 194)
- Big raincoat button that screws onto 2.8/28mm lens (as above)

... and comes with a needle so you can sew the original button back on your grey raincoat after your mission (assuming you weren't eliminated by James Bond ...)



Another view of the F-21 with frame/support including a device for adjusting the lens diaphragm (f: 2.8 to 16). (102) Documents R. Lokkers

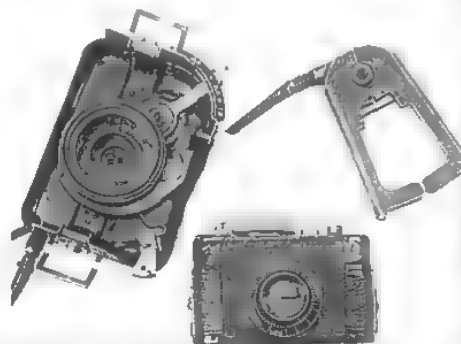


Another view of the F-21 with frame/support including a device for adjusting the lens diaphragm (f: 2.8 to 16).

- Documents R. Lokkers

F21 with frame/support including a device for adjusting the lens diaphragm (f: 2.8, 5.6, 16). Also exists f:2.8 - 16 (102)

Documents J. McKeown



## Surveillance and spy equipment for F21:

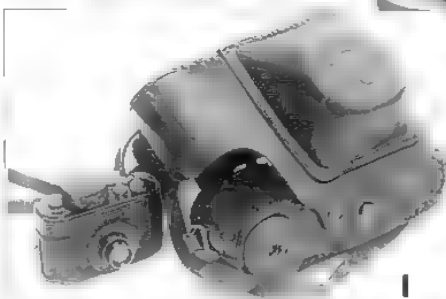
### "Magic" camera cases:

This F-21 is hidden inside a case for a Zenit C (c. 1955-61) of which the dimensions have been cut down slightly to give a better grip of the secret camera inside (photo 1). People around the photographer are not likely to mistrust the closed ever-ready case. With a light pressure on the base of the case (photo 2), an opening appears in the case's side (photo 3), and a photo is taken through it automatically (photo 2).

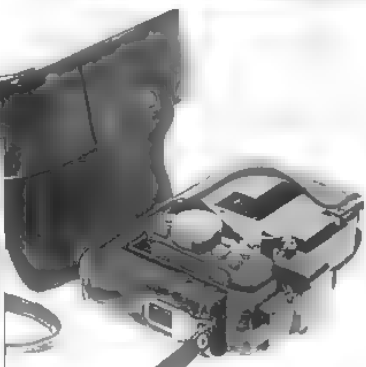
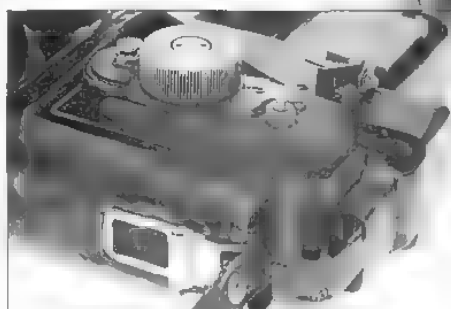
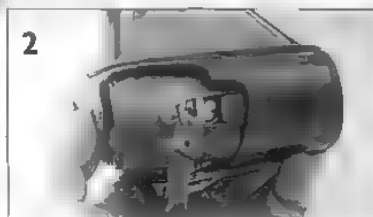
Other "magic cases" are also seen in the form of a standard Zenit ERC. The mechanism is even more sophisticated here, with the picture-taking window masked in the buckle of the strap fitting.

### Others accessories:

- an umbrella (102)
- a non-functional Quartz movie camera hiding a very functional F-21 (see p. 265.)
- Classic case. (151).



F21 and its magic case...  
Doc. A. Berry



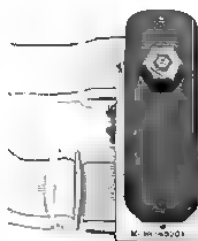
F21 hidden inside a quite normal Zenit ever-ready case

Documents J. McKeown

## S-252 ou "TOTCHKA" K4100 "the dot" c.1960 to the present

S-252 type "A"  
Basic equipment of  
your average spy, or  
of an experienced  
blackmailer. A tie pin  
or jewelry hides the  
lens very elegantly.

Doc. P. Bobinski



Spring-motor 8x11mm subminiature camera, without  
viewfinder.

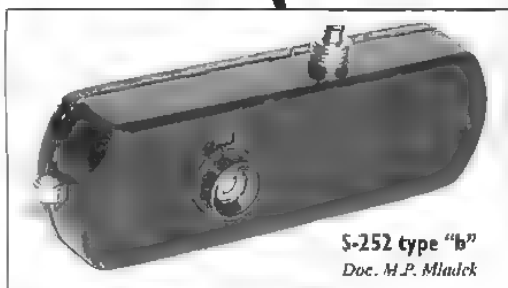
Made by a specialty workshop attached to KMZ in Krasnogorsk.  
Many details of this camera remind us of KMZ's workmanship.

MINOX-type miniature spy camera 8x11mm, but  
unable to use Minox film cassettes.  
Totally silent built-in mechanical motoriza-  
tion.

Very accessible winding knob underneath the  
camera.

The camera in a cradle, is  
worn under a shirt or behind  
a tie, located by a harness-  
type arrangement of straps.  
The (F-21 type) remote con-  
trol, located in a pocket or in  
the sleeve, allows the user to  
select shutter speeds and  
release the shutter.

Three models with several variants are  
known at present. (68, 102, 107, 109, 118, 132, 140)



S-252 type "b"  
Doc. M.P. Mladek

### S-252 Type-a: "the classic"

**K4110**

Fixed-focus model with 4 shutter speeds: 1/10-1/50-1/150-1/400s. These can be set  
with a special remote control cable (see photo above).  
special film cassettes.

The lens has a threaded front allowing various disguis-  
es - brooch, tie-pin, cufflinks - to be screwed on.  
Dimensions: 82x27x10mm.

S-252 type "a" # G120

Doc. P. Bobinski

### S-252 Type-b:

**K4113**

Identical to the model S-252 Type-A (152) but with a  
viewfinder and redesigned to accept Minox cassettes  
Variants:

K4113 - with frame counter for each shot (like the G120  
opposite)

K4114 - with frame counter every 5 shots.

### S-252 Type-c: N° 60443

**K4116**

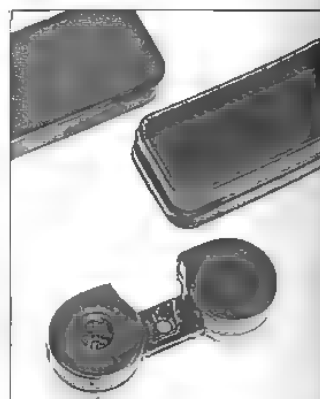
Like the model S-252 Type-B (with viewfinder) and  
with lens focusing to 0.35m.

Speeds: B; 1/10-1/20-1/50-1/100-1/200-1/400s. Control  
located on body. (153)

-3.5/15mm lens with its axis perpendicular to the film  
plane; as with the TESSINA the image is transmitted by  
mirror to the film

S-252 type "c" # 60443

Doc. P. Bobinski



Cassette for type "A" and "B",  
close to the Minox cassette  
but not interchangeable.  
The shaft diameter is too small  
and the flange too large.

Doc. M.P. Mladek

The camera is delivered in a varnished wooden box with a manual; the kit consists of a  
special film cutter, 6 cassettes ready to load, cable release, and a measuring chain (like  
MINOX.)

## FK c.1960-70

In the lineage of "matchbox" cameras more reserved for spies than for smokers, here is a Russian version of the Kodak "Matchbox ZARIA" (which takes up the entire box.) (102, 108)

This camera is remarkably small and compact and with a little training, its use is quite easy:

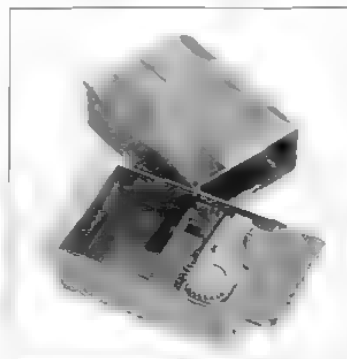
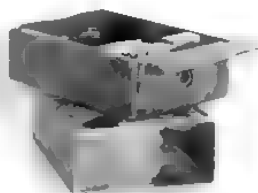
Opening the box (in the direction indicated by the arrow on the box top) displaces the portion of the box filled with (truncated) matches and opens the little trapdoor in front of the lens.

The photo is taken at the same time.

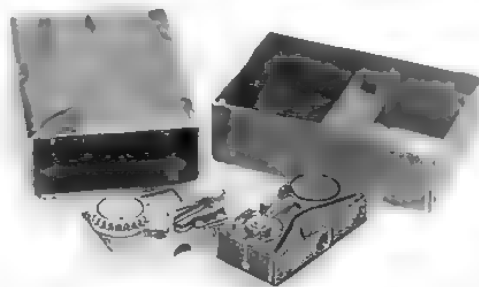
Closing the box advances the film and cocks the shutter. "Smile. You're on candid camera!"

Dimensions: 54x39x18.5mm.

## K4700



Doc. Jim McKeown



Doc. M.P. Mladek



## FK-M c.1970

## K4710

No information available on this camera using Minox type cassettes.

Four element (!) f: 1.4 lens of about 12 - 15mm, focusing from 0.35m - ∞.

Dimensions: 47x21x10.5mm.

## FK c.1970

## K4730

This FK (FotoKamera) differs from the preceding one by its shape; it takes 8x10mm shots on a double cassette film arrangement. Approximately 3/10mm lens. The 5 DM coin (diameter ~30mm [1 3/16"]) gives a good idea of the size of the camera, whose exact dimensions are: (49x14.5x18.2mm). The camera can be held in the palm of your hand, is cocked with a discreet stroke of the thumb, and takes the picture in the same movement.



## PINHOLE CAMERA

## K4750

This incredible little metal box with four pinholes suggests a clever amateur's work more than a spy camera.

In fact the result are, at best, mediocre.

However, a camera of this type is shown on p.69 in H.K. Melton's very serious book on the subject.

So....

Dimensions: 5.3x2.5x1.1cm.



Doc. Jim McKeown

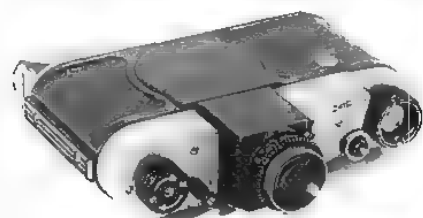
Doc. Paul Colmar

# S-206 / "ZOLA"

# C-206 / "ЗОЛА"



**K4300 - mechanical S-206.**



**S-206 automatic K4300 with "vertical" lens.**

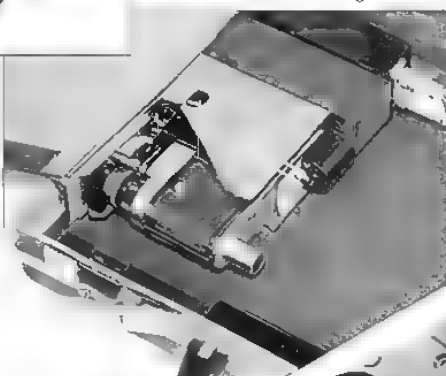
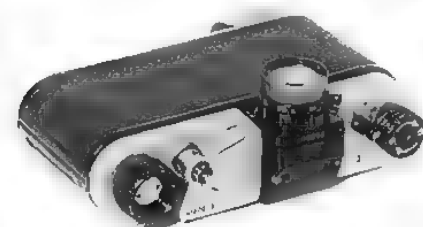
*Doc. M.P. Mladik*

**Automatic S-206 with "vertical" lens in an attaché-case used by ... an attaché from the embassy...**

*Doc. Paul Colmar.*

**K4300 - automatic S-206 with "horizontal" lens.**

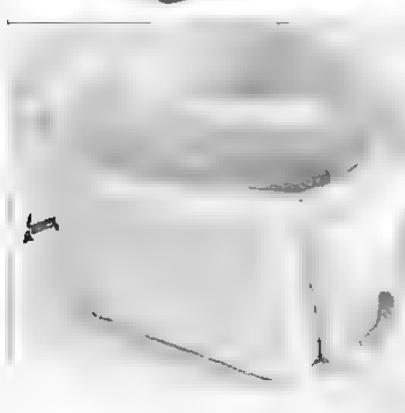
*Doc. M.P. Mladik*



## Accessories:

Here again, the camera can be equipped with a variety of accessories:

- Special belt buckle, with an internal mechanism allowing the diaphragm to be set from the outside (f:3.5, f:8, for example.)
- Cotton "belly-pack" containing the camera and having a belt with a special buckle with an external diaphragm setting device (f:3.5 - 5.6 - 8.) <sup>1138</sup>



**Belly-pack with belt, designed to contain the "ZOLA" S-206 with horizontal lens to take shots whose focus rises no higher than the navel. This kit may not be used by spooks with beer bellies ..** *Doc. A. Berry.*

**S-206 "ZOLA" . The mystery is hidden behind the curtain.**

*Doc. A. Berry.*



# Zorki-6 "Reflex"

These ZORKI-6 with reflex housings and long tubular lenses were supposedly installed (not always in the USSR) by "technicians" to take pictures through walls, of scenes which were certainly quite interesting.

The end of the lens-tube is adjusted to be in the plane of the wall-paper, (if I can believe my very discreet informers.)

A reflex housing, attached to a ZORKI-6 body, contains a permanently mounted compound optical group.

The mirror of the reflex housing does duty as the shutter. The viewfinder, with adjustable diopter, shows a circular, inverted image.

Several extensions can be added to the optical tube; the front tube has a lens group in it giving a wide angle view (like the view through a spy-hole in your door) which can be projected back to the film up to 8-10" away from the front lens.

*Several incomplete outfits were sold at the Cornwall auction. I have never seen one since then.* (199)

**Variant:**

K4250 - c1980. Still on a Zorki body, without shutter but now 18x18mm format, there is a direct viewing model, with a prism to send the image to the film. Equipped with infrared filter.



**K4200**

# S-112

**S-112**

**K4800**

Particularly destined to be used by customs inspectors and immigration services (in the USSR !!!) and border patrols, these rapid reproduction cameras exist in various shapes and versions, from several origins.

Several models were made by KMZ (157), judging by some features, and more recently by BeLOMO.

The S112 (to use the BeLOMO designation) is actually a pocket reproduction kit with a lighting system that illuminates the document at the instant the picture is shot.

**Variants:**

K4800 - S-112 probably produced by KMZ during the 1960's, with numerous sub-types.

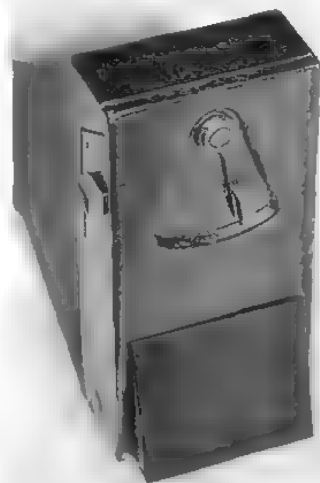
K4820 - S-112 of unknown origin, this model being recognized by a protective glass cover over the lens which also serves to guarantee the flatness of the document being photographed.

K4840 - S-112 produced by BeLOMO in the '80's and '90's.

K4860 - S-112 or S"XXX" similar to the S-112 but with an F-21 inside.



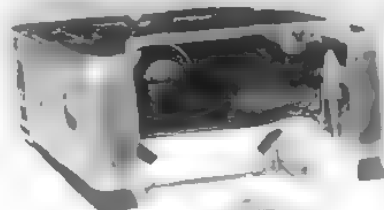
**S-112 "Made by KMZ" c1960**  
*Doc. Max H. Graff*



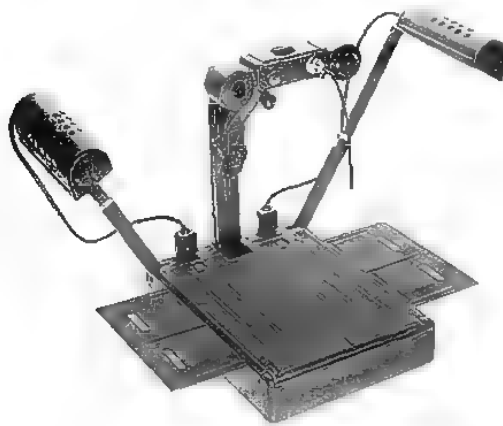
**S-112 "Made by BeLOMO" c1980**



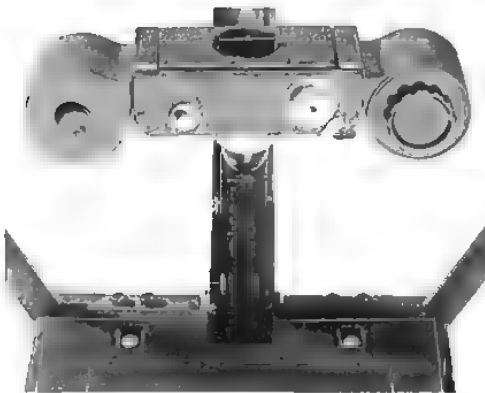
**"Truncated" S-112 of unknown origin, with protective glass plate**  
*Doc. Max H. Graff*



**Lens and lighting system of S112.**



RA-1 later S64... "IOLOCHKA" "apin de Noël avec des épines"



Micrat-200 18x24mm camera of the RA-1.

## РЕПРОДУКЦИОННАЯ УСТАНОВКА С-64

**RA-1** c.1976 - c.1985

**K4400**

**S-64** c.1985 - ... "IOLOCHKA"

With two official names, RA-1 and S-64, as well as the pseudonym: "the Christmas tree with thorns," its original appearance and very ingenious concept, and its repeated presence in several collector-oriented auction sales and fairs, this "IOLOCHKA" just had to be covered in this book.

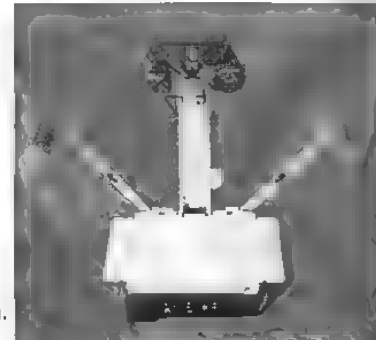
Designed for microfilming, this portable reproduction outfit was originally ordered from KMZ by the "service," then later delivered to various ministries. (150+155).

Reproduction outfit equipped with MICRAT-200 camera using 35mm film to take 18x24mm microphotographs.

Gullotine shutter. Speeds: B; 1/2 - 1/20s. 5.6/30mm lens.

Reproduction table forming a carrying case; preset for object formats 68x90, 120x160, 180x240, 240x320mm. Folding double lighting arms.

The Christmas tree with thorns was even exported, since the same model, slightly modified, has been found in the People's Republic of China.



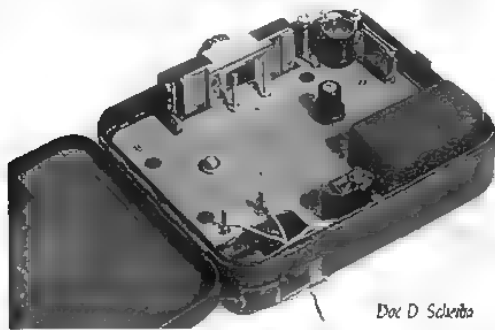
ZENIT RF-1 c.1998 Doc. KMZ

**ZENIT RF-1** c.1985 - ..

**K4410**

Portable motorized reproduction outfit for 400 views 24x36 or 16x24mm. Speeds: B; 2s. - 1s - 1/60s. 8/40mm lens. (156)

## Very Special Cameras



Doc D. Scherbo

**Surveillance camera**

c.1960

**K4920**

Surveillance camera using 16mm ciné film in special cassettes. Totally silent mechanism. Battery powered.



Surveillance camera - Doc. M.P. Mladik

**Surveillance camera**

c.1970

**K4940**

Surveillance camera using 16mm ciné film in special cassettes. Totally silent mechanism. Self contained power pack. Automatic exposure.

Sequence determined by an intervalometer. (102-120-160)

The whole thing can easily be hidden in a book, a vase, a little statue... The lens needs only a tiny hole to perform its difficult job.

# "rollover camera"

As expressed by the English name adopted for this camera (also known as a "brush camera"), this device is actually a camera despite its looking like a thick notepad or a book. (It is generally delivered with a real notepad having a completely identical cover.)

Its use is quite simple: the book-camera, in its open position, is placed against the document to be copied. One then "brushes" or "sweeps" the device as you would a paintbrush. The little rollers on the edges drive the mechanism and activate the lights ... and the document is copied.

*You dreamed about it, the KGB did it!*

There are several models in existence, naturally, but for now we have no information whatsoever on their origin(s) or date(s) of production.

*(You'll have to torture me to get any more information...)*

## "Rollover camera"

**K4920**

Camera disguised in a red or green cloth-bound notepad. 8.3mm film. Operating speed: 20cm/8" per second. Several hundred pages can be reproduced without having to reload.

Dimensions: 13x8.5x1.9cm! Weight: 280 g.

Very carefully produced piece of equipment, delivered in an aluminum outfit case with a second (genuine) notepad, a film cutter, extra bulbs, and a bi-voltage battery charger.

## "Rollover camera Cds"

**K4940**

Sometimes called the Salom camera (?)

Camera disguised in a brown or blue cloth-bound notepad, with **lightmeter**. Two LED's confirm the correct exposure. 8.3mm film. Operating speed: 20cm/8" per second. Several hundred A4 (notebook) pages can be reproduced.

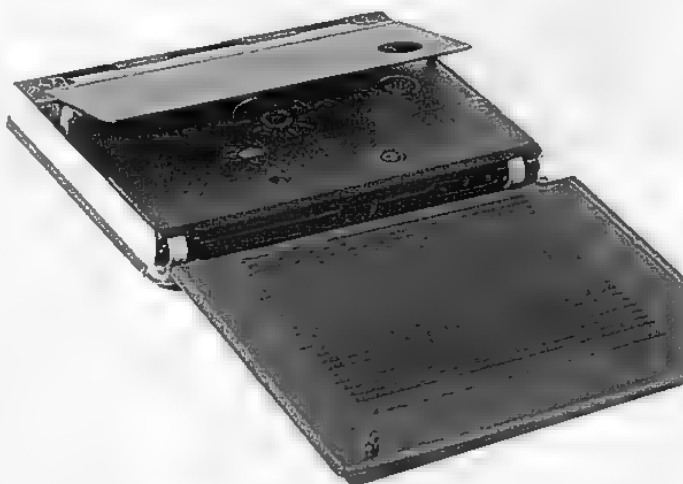
## "Rollover" RUBIN

**K4960**

Thicker and larger (23x17x4cm) version than the preceding ones.



**"Fulldress" Rollover** Doc. M. P. Mladok

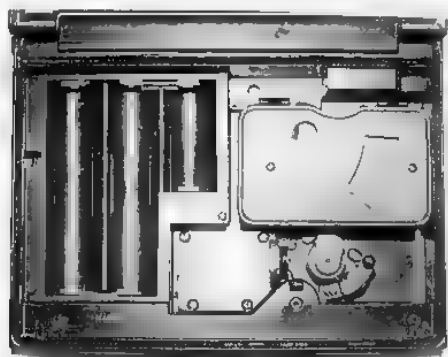


Doc. M. Kostjukovski

RUBIN Rollover camera, not yet hidden in a pad or book. This version seems to be more rudimentary (so to speak) than the other two.

The illustration on the left shows the RUBIN in full frontal nudity.

Doc. M. Kostjukovski





*Military cameras, like spy cameras, deserve their own book. The world's armies all have specialized services for photography and cinematography.*

*In the USSR, as elsewhere, a large number of civilian cameras are transformed and adapted to military service.*

*A few of these cameras will be described here, first because they can be acquired in certain Western photo fairs, but mainly because they are militarized versions of civilian cameras.*



**ZORKI-3** Document | Daniel



**ZORKI-4 K** Document | Daniel

## **ZORKI-3** 1950's **K4500**

Based on the original model but without viewfinder. Bayonet lens mount for quick lens exchange.

The film opening has four marks - two vertical and two horizontal. The camera is designed to be adapted on tank or trench periscopes.

## **ZORKI-4** 1970's **K4550**

See PDF below.

## **ZORKI-4K** 1970's **K4600**

Based on the original model but without viewfinder. Bayonet lens mount for quick lens exchange.

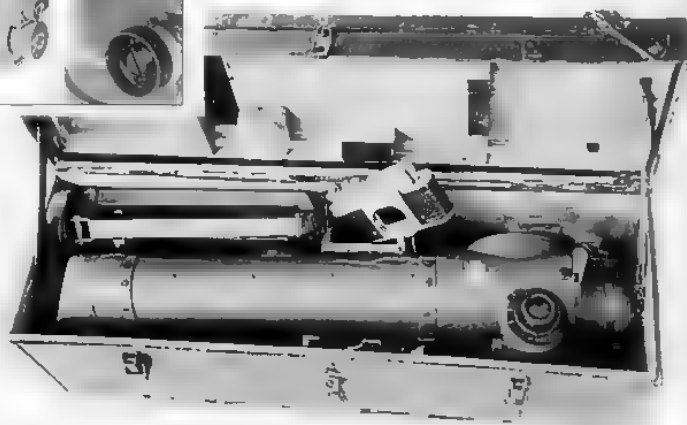
The camera is designed to be adapted on tank or trench periscopes.

## **PDF** 1948+1968 **K4650**

This periscope system can be equipped with a ZORKI-3 or a ZORKI-4. Interestingly, it was produced by KMZ in 1948 (as attested by the logo in the engravings), then "revised" in 1968.

Two enlargements: x6 et x30.  
Delivered complete as an outfit in a case.

*For the collector of this kind of equipment, the PDF deserves a place alongside the photo-machine-guns from OPL and Thornton Pickard, and the Combat Graphic and Combat Graphic 70.*



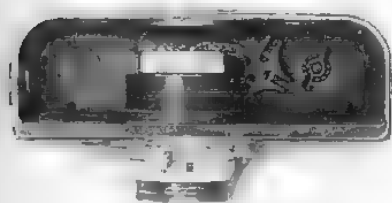
**PDF** Document A. Berry

The exact vocation of these 35mm military cameras remains a mystery.

But the lenses equipping them impose themselves on us:

-Lenkinar RO-56-1 2.8/50mm, except for this picture.

-"KOMZ" Industar-22 3.5/50mm

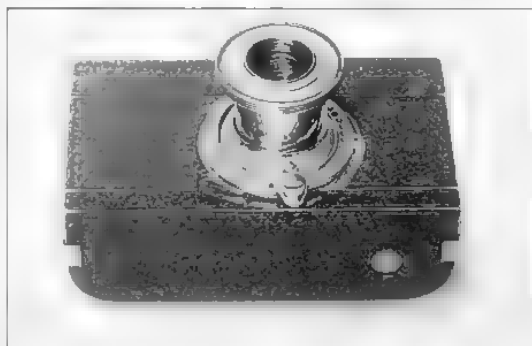
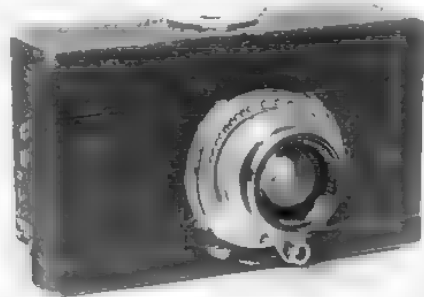


A Maltese cross takes care of the transport of the 35mm perforated film contained in an interchangeable magazine back. Doc. Mayumi Kobayashi

"Lenkinar RO-56-1" lens, (otherwise unknown - Doc. Mayumi Kobayashi

"Industar-22" lens version Kz10 - Doc. Mayumi Kobayashi

RA-39A, military aerial camera equipped with the URAN-27 2.5/100mm  
Doc. M.P. Miudek



## RA-39A Aerial camera

For aerial photography in 70x80mm format from around 5000m (16,500 ft.) altitude at speeds up to 1500 km/h (930 mph). Shutter speeds: 1/700, 1/1300, 1/1800s. Camera and 2.5/100mm (Kz250 p. 248) lens developed to function in temperatures between -60° to +60° C. (-76° - 140° F). An anti-condensation filter, with embedded electrical resistance wires, is located in front of the lens.

## Speaking of Soviet cameras...

For those iconomechanophiles that we are, it is fascinating to note the extent to which in the USSR certain workshops, (particularly KMZ) were able to create, sometimes in very small quantities, such amazing masterpieces of optical and micro-mechanical precision.

In the realm of photographic cameras, this high level of technology was never truly exploited outside the fields of military programs (easy to understand), industrial espionage (we can even accept that), and internal security (no comment). We therefore regret in passing to note that this precision, so perfectly mastered by industry, was not visible in the production aimed at the civilian market.

The Bolshevik Minister Lunatcharski (17) proposed a quality camera for every soviet family. His "wish" was fulfilled, initially with the Fotokor, followed by the FED, a copy of the Leica, the 20th century's quintessential camera.

After the war, the fifties are full of promise with cameras like the Zorki-3, the Leningrad, the Rodina, the Kometa and their series of lenses. But with the accession to power of Brezhnev and Kosygin, the military is back in control. Priority is given to the arms race, the space race, and "Star Wars." The sectors dealing with civilian production are relegated to the status of second class, along with production quality. (see p.29.)

## ... and Speaking about spy cameras...

... most of these cameras are available at your ministry, delivered within 48 hours in a shiny hand-painted lacquer box ...

Well, except for the box, it's all a joke.

Even so, I couldn't resist the urge to step back and take a look, I hope with some humor, at the category of these spy cameras. They weren't created as beautiful mechanical objects but to cheat, to lie, to copy, to spy, and to perform all sorts of nasty tasks, none of which serves the greater goal of the happiness of mankind. (132, 133)

So I joke and I smile, as if to exorcise evil fate.

Because it is always urgent to laugh ...



ЗБТЗ



ФАГ



УНИВЕРСАЛЬНАЯ КОМПАНЬЯ  
 УНИВЕРСАЛЬНАЯ КОМПАНЬЯ



<b>Завод АРСЕНАЛ</b>	206	ARSENAL Factory
<b>КИЕВ</b>	207	KIEV
КИЕВ-2, КИЕВ-2а, КИЕВ-3, КИЕВ-3а	208	KIEV-II, KIEV-IIa, KIEV-III, KIEV-IIIa.
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# ZAVOD ARSENAL

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КИЕВ-10 АВТОМАТ	216	KIEV -10 AUTOMAT
КИЕВ-11 з Объектива КИЕВ АВТОМАТ	217	KIEV-11, KIEV AUTOMAT lenses
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САЛИУТ, САЛИУТ-С, КИЕВ-80, КИЕВ-88, КИЕВ 6х6	222	SALIUT, SALIUT- S, KIEV-80, KIEV-88, KIEV-SIX
Объектив САЛЮТ, КИЕВ-В, КИЕВ-Б	223	SALIUT, KIEV-V, KIEV-B lenses
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КИЕВ-6С, КИЕВ-60	225	KIEV-6S, KIEV-60.

The ARSENAL factory, founded in 1764, is one of the oldest companies in the Ukraine.

In 1946, the great patriotic war is over, and the ARSENAL military works is in full reconstruction. Based on its prewar reputation for having very high level technician, ARSENAL receives, by ministerial decision as War Reparations, a portion of the German booty, consisting of material and tooling originally owned by Zeiss Ikon and Carl Zeiss Jena.

Everything that can be taken from Germany is redistributed to "worthy" republics after having moldered for a considerable time on the rail sidings around Moscow. KMZ kept the lenses and everything that involved optics, along with the very famous 6x9cm Super Ikonta folding cameras. The 35mm CONTAX material is destined to ARSENAL.

In due time, machine tools, hand tools, molds, jigs, and parts formerly belonging to ZEISS, along with German laborers, engineers and specialized mechanics, converge on Kiev (69.)

In the ARSENAL V. I. LENIN everything is already set to begin production starting the following year.

Starting with Contax parts, the first "KNİB" (KIEV in Ukrainian) see the light of day, equipped with lenses supplied by Krasnogorsk.

Initially these are ZK (Sonnar Krasnogorsk) f:2 and f:1.5 5cm lenses, followed in 1948 by ZK 8.5cm and 13.5cm, and finally the BK (Biogon Krasnogorsk) 3.5cm.

These are all assembled from recovered German lens assemblies

The "real" German parts begin to run out soon but by then the ARSENAL factory is able to produce these very complex cameras from scratch with a good level of quality.

These cameras are synchronized in 1955-56 and become the KIEV IIa and KIEV IIIa, respectively.

50,000 cameras produced each year demonstrate the success that the KIEV has in the USSR.

The communist press salutes this success as the result of "... placing within reach of [our] laborers goods which remain inaccessible to workers in the capitalist world."

In 1957 ARSENAL introduces to the world yet another complicated camera, the Ukrainian copy of the HASSELBLAD 1000F 6x6cm single lens reflex camera, known as the SALYUT (131). That same year sees the production at the VEGA affiliate of ARSENAL, a copy of the MINOLTA-16 camera. It is baptized VEGA.

On March 18th, 1965 the Cosmonaut A. LEONOV successfully uses a KIEV-10 camera during his space mission.

In the beginning of 1966, the KIEV-10, the first 35mm full frame camera with a fan-shaped metal shutter, is offered to the public.

It is followed in 1974 by the KIEV-15 TEE, the first Soviet SLR with TTL metering.

In 1970, celebrating the 100th anniversary of LENIN's birth, the 6x6cm SLR KIEV-6S is officially introduced, with a wide range of interchangeable lenses.

In 1971, the KIEV ARSENAL factory becomes the ARSENAL UNIT. (Just as, the same year, MMZ becomes BeLOMO and FED becomes the FED UNIT.)

As with all the other Soviet enterprises employing thousands upon thousands of workers, ARSENAL, with its reputation for making still cameras, movie cameras, and projectors, is also a producer of military, medical, and scientific equipment.

Like KMZ, ARSENAL is the headquarters for several peripheral firms such as VEGA in Uman and PROGRESS in Nezhin. ARSENAL is also a regular supplier of photographic equipment for the Space program, including SOYUZ and MIR.

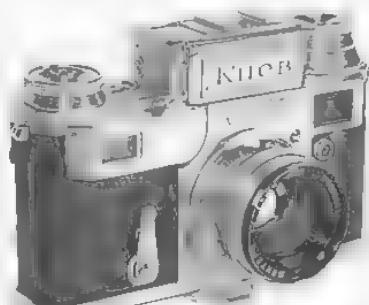
In 1994 the Ukrainian factory still produced the KIEV-88 but with the bayonet of the KIEV-60, thus taking the lenses used in common with the KIEV-90, the "Loch Ness Monster" of soviet photographic production.

35mm production also continued with the KIEV 18 and 19M models, backed up by a more and more extensive range of lenses in NIKON bayonet, and also with the KIEV-35AM compact camera and the KIEV 30M and 303 subminiature cameras. With the fall of the Soviet Empire the ARSENAL factory had a chance to become a first class international enterprise in the world of photography.

It seems that another path was chosen.



Millionth KIEV. It is a 1975 KIEV-4, type 2.  
The JUPITER-8M lens also bears number 1 000 000.  
Doc. ARSENAL



Commemorative KIEV IIIa: XXth congress of "KPSS"  
Doc. M.P.Milek

The history of the KIEV-CONTAX is quiet controversial.

The brief history offert on the preceding page is a resume of spotty information we gleaned from various sources in the Soviet Union during our trips between 1989 and 1993.

So, while waiting for the Ukrainian authorities to shed some light on the own history, we highly recommend that you consult the works of several authors, including H.J. Kuc, R. Hummel, C. Barringer and M. Sasaki to obtain other perspectives on this photographic epic.

**A10 - KIEV CONTAX "47"**  
equiped with ZK "Sonnar  
Krasnogorsk" lens  
# 000465 de 1947

Document P.M. Kazimierzak



## **KIEV CONTAX "47" 1947 - 1948**

A few dozen units, maybe a few hundred at the most. (70)

- exist with type A10 and type A20 engraving.

## **A10**

## **KIEV "48" 1948 (fewer than 2000 units)**

A few hundred with the A10 type engraving; then with the A20 markings.

## **A20**

## **KIEV "49" 1949 (around 2000ex.)**

Characteristics identical with those of the ZEISS IKON Contax, since they were assembled from original Contax parts.

Full frame 35mm long base rangefinder camera with combined viewfinder. Metal "window blind" focal plane shutter running vertically.

speeds: B; 1/2 - 1/1250s.

Removable back held by two built-in keys.

removable take-up spool with KIEV inscribed in the plastic instead of CONTAX. Also metal reloadable film cassettes engraved KIEV (not interchangeable with the ZORKI ones.) Self timer

Combined inner and outer bayonet mount.

Internal bayonet, with focusing mount, (???) for the 50mm lenses:

ZK- (Sonnar-Krasnogorsk) 2/5cm KMZ,  $\pi$ -coated. (71)

ZK- (Sonnar-Krasnogorsk) 1.5/5cm KMZ,  $\pi$ -coated. .

Fixed outer bayonet for other focal length lenses:

BK- (Biogon-Krasnogorsk) 2.8/3.5cm KMZ,  $\pi$ -coated.

ZK- (Sonnar-Krasnogorsk) 2/8.5cm KMZ  $\pi$ -coated.

ZK- (Sonnar-Krasnogorsk) 4/13.5cm KMZ,  $\pi$ -coated.

All lenses are rangefinder coupled. The lenses with outer bayonet mounts have built-in focusing helicoids.

From the outset of production the two first figures of the serial number of ARSE-  
NAL products denote the year of production. Thus it is easy to date KIEV cam-  
eras and lenses.



A10 - KIEV "47" N°47160 Doc. A. Kusner



A20 - KIEV "48" N° 481800, ZK N°003714 Doc. C. de Tihen

By late '49 - early '50 the KIEV is made entirely from parts that have been stamped, milled, machined and finished in Ukraine.

Very few modifications compared to the original, but the chrome finish is matte, less bright. The four digit serial numbers and later research suggest a production well below 5000 units annually during the first three or four years.

In 1949, KMZ begins to supply Arsenal with 2/5cm lenses labeled "ZORKI" to replace the Zeiss-origin ZK lenses; these are entirely polished and assembled in the Moscow factory. In 1950 the name is changed to JUPITER-8.

By 1955, these JUPITER lenses are made by Arsenal.



A40 - KIEV II N° 53 2142

#### **KIEV-II 1950 - 1955**

**A40**

Identical to the KIEV "CONTAX" of 1947 - 49, with a new logo and a few minor variations, such as the design of the underside of the balance foot.

Variant:

A42 - Double engraved in Cyrillic-Roman characters, starting in 1950.



A61 - KIEV IIa N° 58 01185

#### **KIEV-IIa 1955 - c.1959**

**A61**

Identical to the KIEV-II, but with synched shutter. The contact is on the camera front, underneath the viewfinder window.

Production increased to around 15,000 cameras per year, requiring five digit serial numbers.

Variants:

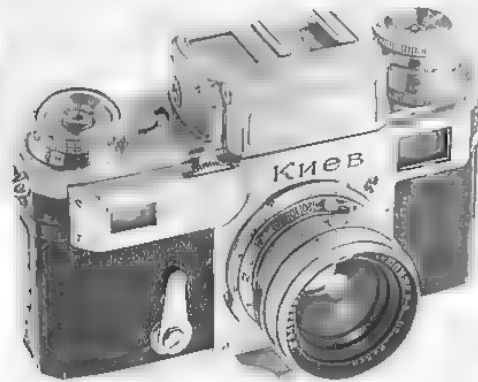
A60 - Engraved KIEV in Cyrillic only.

A61 - Double engraved in Cyrillic-Roman characters.

The accessory shoe of export model cameras is engraved:

"IZGOTOVLENO V SSSR" (72) and "MADE IN USSR"

A62 - KIEV-IIa with special macro-medical mount. (The lens is generally an I-22Y enlarging lens).



A50 - KIEV III N° A 54 2275

#### **KIEV-III 1949/1952 - 1955**

**A50**

With top plates and meter cells probably from ZEISS IKON on the earliest units, the KIEV III is the logical sequence in the system.

mechanical characteristics identical to those of the KIEV II, with the addition of an uncoupled selenium meter on top of the camera.

The meter settings are located in the rewind knob crown.

Variants:

A51 - Although officially produced only starting in 1952, several KIEV III with meters graduated in DIN (thus of Zeiss Ikon origin) have been reported with 1951 dates.

A52 - Double Engraved in Cyrillic-Roman characters. (Export)



A71 - KIEV IIIa

#### **KIEV-IIIa 1955 - c.1959**

**A71**

Identical to the KIEV III, but with synchronized shutter; the contact is located beneath the viewfinder window.

KIEV-IIa and IIIa are delivered with JUPITER-8 lenses with the Arsenal logo made in the Arsenal plant.

Variants:

A70 - Engraved KIEV in Cyrillic only.

A71 - Double engraved in Cyrillic-Roman characters.

The accessory shoe is engraved: "IZGOTOVLENO V SSSR" and "MADE IN USSR" for export cameras.

A72 - Double engraved in Cyrillic (Ukrainian)-Roman characters with accessory shoe engraved: "SDELANO V SSSR".

A73 - Meter door engraved with KIEV markings and XXth Congress (1956)



In October, 1962 the Cuban Missile Crisis disrupts international opinion. Arsenal, under pressure from some foreign importers, delivers a series of KIEV 4a with no name engraved on them.

These "NO NAME" cameras, sometimes shipped to the USA equipped with (both East and West German origin) Zeiss Sonnar lenses are identified only by a prefix number before the serial number engraved in the accessory shoe. Generally with a "63", sometime with "64".

#### **KIEV-4a 1958 - c.1974**

**A81**

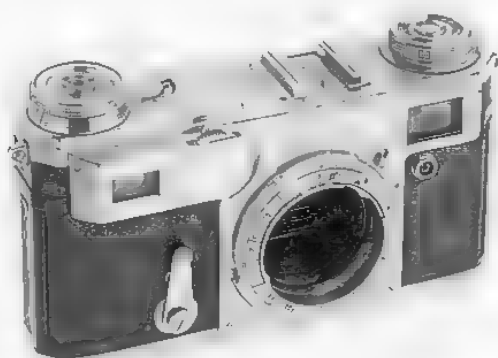
In 1958 the KIEV-4a replaces the KIEV-IIa, getting the modifications already made to the KIEV-4 the previous year. (see below.)

The camera bottom is now flat, having lost the balance foot and the conical crowns around the locking keys, in favor of three small support tabs. The rewind knob now harbors a film speed reminder. The accessory shoe is engraved: "SDELANO V SSSR". Delivered with JUPITER-8M 2/50mm.

*Variants:*

A80 - Double Engraved in Cyrillic-Roman characters.

A81 - "NO NAME", not marked Kiev or Contax; no marks except serial number. (fewer than 6000 units, most in 1963.)



**A81 - KIEV 4a "NO NAME" N° 63 0585**

#### **KIEV-4a type-2 c.1974 - 1980**

**A85**

Identical to the KIEV-4a but with a new façade: the side of the lensmount plate is now angled, covering the bump previously visible above the self-timer. A new self-timer lever, inherited from the KIEV-5, has a plastic insert. (see p. 211). Body covering in synthetic, instead of genuine leather. The accessory shoe now has the Arsenal logo with the serial number.

*Variant:* A86 - Body covering in brown color.



**A85 - KIEV 4a N°74 25167**

#### **KIEV-4am c.1980 - 1987**

**A100**

Identical to the KIEV-4a type-2, but incorporating all the modifications of the KIEV-4m.

Delivered with JUPITER-8M 2/50mm or HELIOS-103 1.8/53mm.

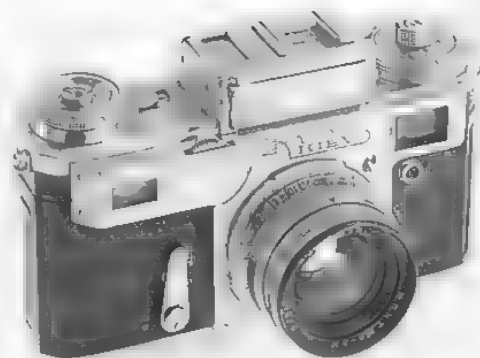
#### **KIEV-4 1957 - c.1974**

**A90**

The KIEV-4 is a direct descendant of the KIEV-IIIa, benefiting from several modifications directly inspired by the CONTAX IIIa from Zeiss Ikon:

- New lightmeter, smaller but more sensitive;
- New rewind knob assembly;
- New back/base plate.

The KIEV-4 and 4a are equipped with the new Jupiter-8M and a new lens, the Orion-15 (see p. 150), extends the range of available optics.



**A90 - KIEV 4 N°6721576**

#### **KIEV-4 type-2 c.1974 - 1980**

**A95**

Identical to the KIEV-4, with the façade and new characteristics of the KIEV-4a type-2 (see the illustration of the millionth KIEV, p. 206)

#### **KIEV-4m c.1976 - 1987**

**A110**

Marked shutter speeds are now: B; 1/2 - 1/1000. Selector knob is changed (a derivative of the KIEV-5) and index marked by rd arrow, rewind knob is now black, with or without chrome rings, flash sync in accessory shoe, self-timer with plastic-covered tip and shaft, artificial leather camera covering, strap lugs displaced lower on sides, fixed takeup spool, elimination of the springs locating the feed spool.

*Variants:*

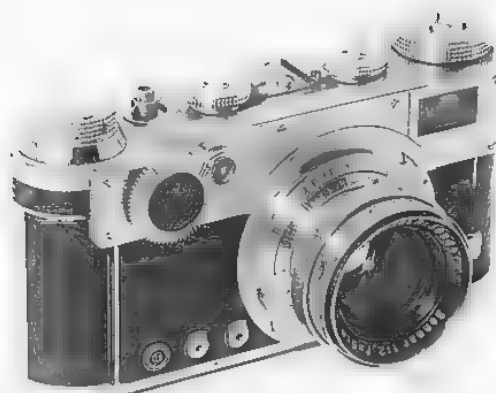
A111 - KIEV-4m with black finished top plate (# 760002 !!!).

A112 - KIEV-4m completely black finished (seen at Bièvres) (20).

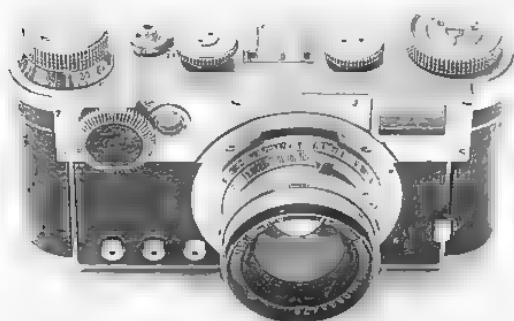
A113 - KIEV-4m Moscow Olympic Games 1980 (bodies dated 1979, '80.)



**A110 - KIEV 4m**



Prototype of "unknown origin" Doc M P Mladck



Prototype of "unknown origin" or Made in Leningrad ?"  
Doc M Kampf

Development model or prototype, three versions of this camera, with minor differences, have been seen on the collector market over the last few years. Their presence in the Kiev chapter could be contested, as for the moment the origin of these cameras cannot be documented with absolute certainty. Only the bayonet and the Contax style focusing wheel, common to the KIEV as well as to these prototypes, suggested that they should be in this chapter.

Full frame 35mm camera with long-base rangefinder using the Boscovich principle (that is, two contra rotating prisms, as used on Super Ikontas.) Focusing wheel actuated by finger on user's right hand. Rangefinder combined with Galilean finder.

A vertical sliding mask reduces the field to that of a 13.5cm lens.

Leica-type focal plane shutter with separate control wheels for slow and fast speeds, located on either side of the accessory shoe.

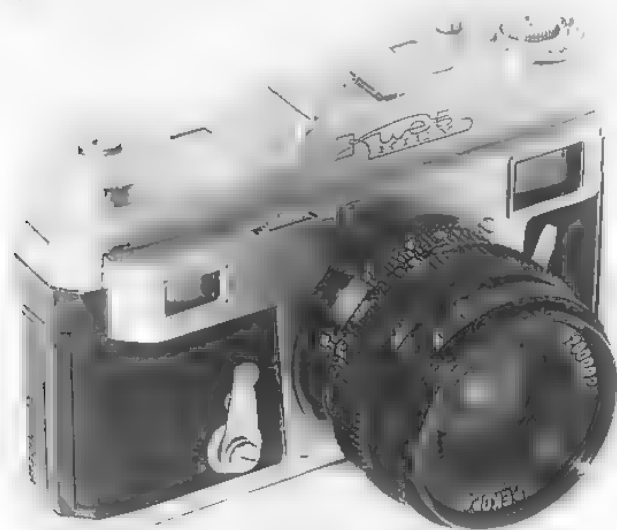
- on wind side, speed control wheel B, 1 - 1/25s (which might imply a date after 1950) to 1/1000s.

- on takeup side, slow speeds 1 - 1/10s. + "Z" (Zeit - as in German like the FED-1).

Double bayonet mount, seemingly identical to the Contax/Kiev type, but in reality not able to accept the 35mm Biogon while the 13.5 lens is not accurately coupled to the rangefinder. Thus it is unlikely that Arsenal, which possessed the tooling needed to make the Zeiss-origin bayonet, was the author of this camera. Rewind knob with film speed reminder, calibrated from 6 - 24 GOST, a feature that only shows up on cameras around the end of the 1950's (GOMZ)

## KIEV TTL

By Milos P. Mladek.



KIEV TTL. Simply superb.... Doc M P Mladck

## КИЕВ TTL

### KIEV-TTL c.1962

Full frame 35mm camera with rangefinder identical to that of Contax and Kiev, but with 1:1 bright frame Van Albada finder.

Based on a Kiev-4, this superb prototype is equipped with a **TTL metering system** using two selenium cells behind the lens. The two cells move out of the way during the exposure.

Since the coupling with the diaphragms is not needed on a rangefinder camera (the diaphragm determining the exact quantity of light needed), only the speeds are coupled, using a resistor.

The meter needle is visible both on the camera top and through the viewfinder thanks to a small horizontal enlarging prism. The internal bayonet is kept only for coupling the lenses to the rangefinder, as on the KIEV5.

REKORD 1.8/50mm lens from c. 1962.

*We really regret that this camera was never produced. It was simply superb. (104)*

Like their counterparts at KMZ a few years earlier, the R&D engineers at Arsenal tried to break the mold and escape from the "original model." So, still based on the KIEV-4, but with a revised top shutter speed of 1/1000s., a lever wind, an enlarged viewfinder with frame lines, Arsenal introduced to the Soviet press sometime around 1965 a new camera that benefitted from a modern concept: the KIEV-5.

## KIEV-5 "preseries" c.1965 - 1966

**A150**

Full frame coupled rangefinder 35mm camera with parallax corrected, integrated 1:1 viewfinder. (A linkage relays this correction to the accessory shoe.)

KIEV-5 graphics engraved across the entire width of the top plate.

Contax/Kiev type vertical running metal "window-blind" shutter with speeds: B; 1/2 - 1/1000s. self timer

Fret-sawed metal wind lever.

Sync contact located under the finder window. Frame counter (every 4 views) and lightmeter faired into camera top plate.

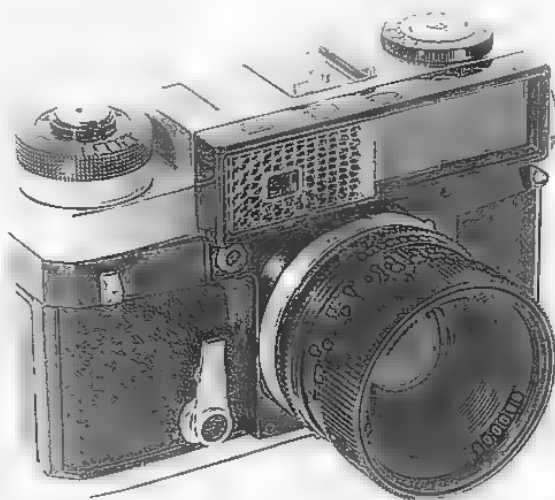
Meter setting scale graduated only from 16 - 250 GOST (20 - 320 ASA.)

Folding rewind crank located on vertical body end surface.

Strap lugs on front of body.

Internal bayonet abandoned, but three lugs still couple lenses to rangefinder mechanism.

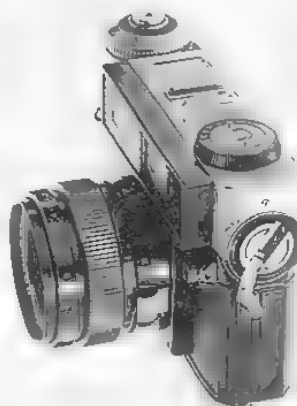
JUPITER-8NB (8NB) (8НБ) 2/50mm lens mounted on outer bayonet.



**KIEV-5**

first version.

Doc. M.P. Mladek



Unfolded rewind crank, ready to function on a KIEV-5

Doc. Ch. A. de T

## KIEV-5 c.1967 - 1973

**A152**

Identical to the preseries model, with:

- Modified KIEV-5 graphic on top plate above RF/VF window
- Smaller viewfinder image (0.7x). Parallax correction.
- Focal plane index.
- Serial number and Arsenal logo in accessory shoe.
- Shorter, stamped metal wind lever.
- Sync contact under the viewfinder window
- Redesigned self timer lever.
- HELIOS-94 1.8/50mm external bayonet lens.
- c. 1971 - 85mm frame lines visible in viewfinder

Variants :

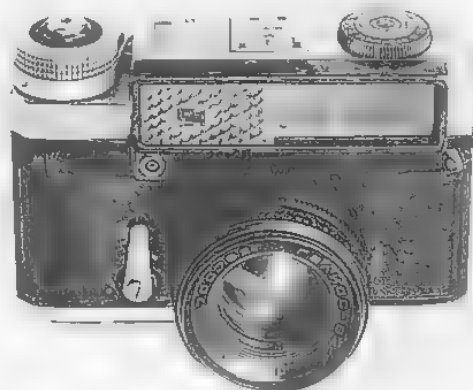
A153 - c. 1972  
elimination of infinity lock button on lens mount plate



**KIEV-5** equipped with the extraordinary and extraordinarily rare ultra high speed REKORD-4 0.9/52mm.

Doc. M.P. Mladek

The technical developments incorporated into the KIEV-5 are not all lost; some are included in the KIEV-4a type-2 in 1974.



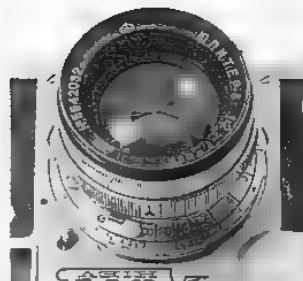
**KIEV-5 c.1968** Doc D. Scheiba



**K510 - Z.K.** 2/5cm 19 - 47  
**K511 - Z.K.** 2/5 cm 19 - 48  
**K512 - Z.K.** 2/5 cm 19 - 49  
 KMZ lenses mounted on the early KIEV models from 1947 through '49



**K520 - Z.K.** 2/5cm **"ZORKI"** 1949-50  
 KMZ mounted on KIEV-49 and on KIEV-II  
 Identical to the K510 (see p. 143).



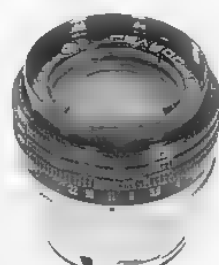
**K160 - JUPITER-8** 2/5cm KMZ starting in 1950  
**A160 - JUPITER-8** 2/5 cm Arsenal c. 1955, produced in Kiev



**A170 - JUPITER-8M** 2/5 cm Arsenal c. 1957, using a recalculated 6-element formula and equidistant click-stopped diaphragm settings.



**A180 - JUPITER 8-NB (B-NB)** 2/50mm c. 1966, on KIEV-5 type-I  
 NB = "narouzhnyi bayonet." (ext. bayonet)  
**A185 - REKORD-4** 0,9/52mm c. 1966, for KIEV-5.  
 Never series produced. see p. 209



**A190 - HELIOS-103** 1.8/53mm c. 1980, on KIEV-4m and 4am.  
**A191 - HELIOS-103** 1.8/50mm  
**A195 - REKORD** 1.8/50mm c. 1966, for KIEV-TTL. Never series produced. see p. 208



**A200 - HELIOS-94** 1.8/53mm  
**A201 - HELIOS-94** 1.8/50mm (KIEV-5)  
**A205 - MENOPTA** 1.8/53mm Contax bayonet and S39 screw mounts



**K605 - Z.K.** 1.5/5cm 19 - 48  
**K615 - Z.K.** 1.5/5 cm **"ZORKI"**  
**K625 - JUPITER-3** 1,5/5 cm KMZ



**K705 - B.K.** 2.8/3.5 cm 19 - 48 for KIEV-48 (see p. 143)  
**K715 - B.K.** 2.8/3.5 cm **"ZORKI"** c1949-1950 (see p. 143)



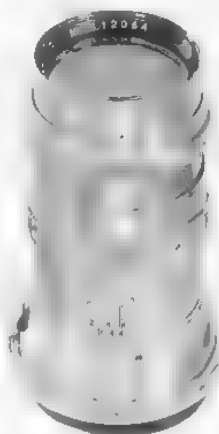
**A220 - JUPITER-12** 2.8/35mm c. 1956 by Arsenal. chrome.  
**A225 - JUPITER-12M** 2.8/35mm c. 1965 for KIEV-5 black finish  
**Lz20 - JUPITER-12** 2.8/35mm c1960 by LZOS. chrome.  
**Lz25 - JUPITER-12** 2.8/35mm c 1975 by LZOS black finish



**K755 - Z.K.** 2/8.5 cm 19-48 KMZ for KIEV-48 and 49 (see p. 145)  
**A230 - JUPITER-9** 2/85mm Arsenal c. 1957 Chrome  
**Lz30 - JUPITER-9** 2/85mm c. 1960. Chrome by LZOS



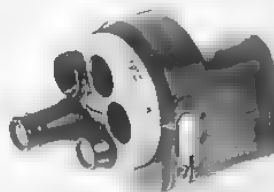
**A233 - JUPITER-9M** 2/85mm c1965 pour KIEV-5. Laqué noir  
**A235 - JUPITER-9** 2/85mm c1970, Laqué noir  
**Lz35 - JUPITER-9** 2/85mm c1970. Laqué noir par LZOS



**K805 - Z.K.** 4/13.5cm 19 - 48 KMZ for KIEV-48 and 49  
**K815 - Z.K.** 4/13.5cm **ZORKI** c. 1950, (unconfirmed.)  
**K825 - JUPITER-11** 4/135mm KIEV mount  
**A240 - JUPITER-11** 4/135mm Arsenal c. 1957. built-in sunshade  
**Kz 30 - JUPITER-11** 4/135mm Kazan. c. 1970. Chrome

**Z100 - ORION-15** 6/28 mm 75° c 1957 UNCOUPLED made by ZOMZ (p. 249).

Most of these lenses were made in a succession of finishes over time: nickel, brushed aluminum, glossy (varnished) aluminum, chrome, anodized, and sometimes black finish.



**K900 - Universal finder** KMZ copy, later successor, of the Contax finder

This device for taking stereo photographs, clearly owing much to the prewar Zeiss Ikon STEROTAR-C of 1942, is not described or referred to in any catalogue or other Soviet work of reference.

The kit is definitely not a "handy-man special." It is dated 1952, a period during which Arsenal was gearing up for series production, and demonstrates unequivocally the extraordinary optico-mechanical capabilities of the Arsenal factory. Then again, it might be a Zeiss product saved from the dumpster and given a new lease on life.

Kiev outer bayonet mount, usable on 39mm screw-mount via an adapter

A bayonet on the front of the SN-5 accepts a stereo prism unit, which establishes the correct interocular distance for distance views.

as on the Stereotar-C, the SN-5 is equipped with matched 4/3.5 lenses.

Focusing 1m - ∞; not coupled to rangefinder.

A red dot among the DoF marks indicates the infra-red focus corrector index. This indication, along with the hammer and sickle, and the official military emblem of the Arsenal, lead us to suppose that the SN-5 was ordered by the Soviet Army.

Delivered in a leather outfit case, with 3 filters for B&W films, a 39mm screwmount adapter, and a rear protective cap.



Doc. P. Bobinski

## STEREO FK-SK1

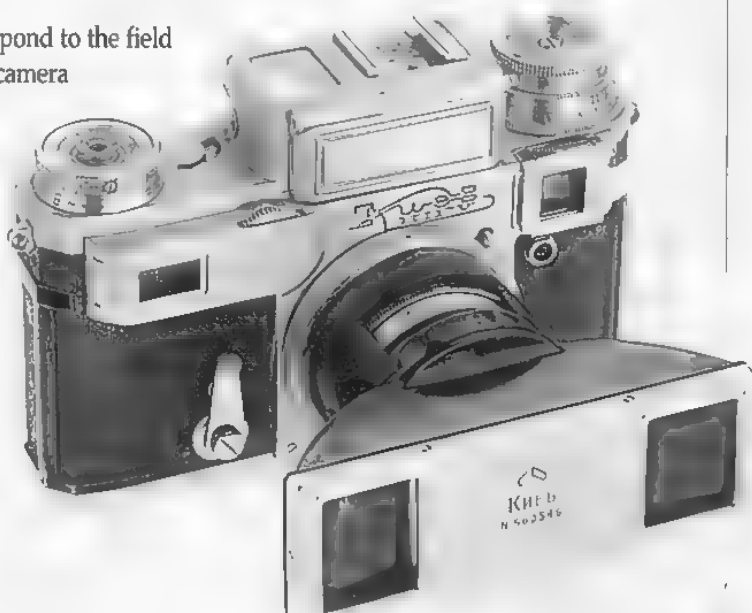
## СТЕРО ФК-СК1

A more widely known accessory than the SN-5, the KIEV FK-SK1 stereo kit is a beamsplitter which is placed in front of the lens.

It is mounted on the external bayonet, and a cutout allows the diaphragm to be set by the normal setting ring on the lens with the stereo adapter in place.

A viewfinder mask, limiting the field of view to correspond to the field of the split frame of the beamsplitter, is placed on the camera viewfinder window. This accessory is quite rare, since it is often lost

Delivered as an outfit with folding stereoscope and contact printing frame..



Coupled rangefinder 35mm  
KIEV "CONTAX" type

without meter

with meter

miniatures

24x36mm REFLEX

Fan-bladed  
shutter

Focal plane  
shutter

6x6cm  
4.5x6cm  
SLR

1941  
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1990  
1991  
1992

6 November 1943, KIEV is liberated by the RED ARMY

KIEV  
"CONTAX"  
47-48-49

KIEV  
II

KIEV  
III

KIEV  
IIa

KIEV  
IIIa

synchronization flash

KIEV  
4a

KIEV  
4

VEGA

"NO NAME"

KIEV  
TTL

VEGA  
2

SALIUT

October 1962: "Cuban missile crisis"

18.3.1965 . Alexei LEONOV in space with a KIEV 10

KIEV  
10  
type 1.

1971. The factory adopts the Unit Arsenal name

K.  
II

KIEV  
10  
type 2.

SALIUT  
C

KIEV  
6C

1975. 1,000,000th KIEV

KIEV  
4  
type 2

KIEV  
15  
TEE

KIEV  
80

KIEV  
4a  
type 2

KIEV  
30

KIEV  
17

KIEV-20  
KIEV-17M

KIEV  
88

KIEV  
6C  
TTL

KIEV  
4am

KIEV  
4m

KIEV  
15  
TTL

KIEV  
19

KIEV  
19M

KIEV  
18

KIEV  
88 TTL

KIEV  
60  
TTL

KIEV  
90

KIEV  
35A

KIEV  
30M

KIEV  
35AM

KIEV  
303

## KIEV-35 c.1983 prototype

Presented at the 1984 Photokina, prototype KIEV-35.  
planned lens: Industar-99

A600

A600 - KIEV 35 "Photokina 1984"

## KIEV-35A c.1985

compact 35mm, front cover folds down to open camera  
Exact copy of the MINOX 35, but the KIEV-35A is ~2mm wider.  
Electronically timed central shutter, with diaphragm priority automation.  
Speeds: 4s-1/500s.; hot shoe flash sync.  
selected speed from 1/30 - 1/500s. indicated by needle visible in finder.  
film speed settings: 22 - 700 (later 800) GOST / 15 - 30 DIN.  
MC-KORSAR 2.8/35mm lens

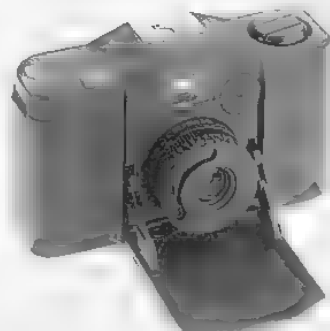
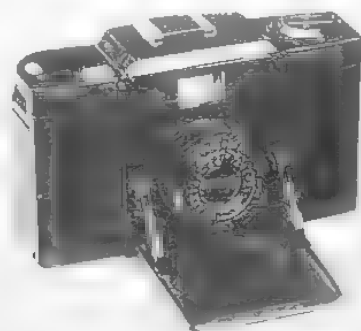
Variants:

Different body colors: black, bronze or light grey.

K611 - KIEV-35A marked in Roman letters.

K612 - EXXEL Automatic (MASSA- c. 1991, Germany).

A610



A610 - KIEV 35 A

Doc. A.M.C

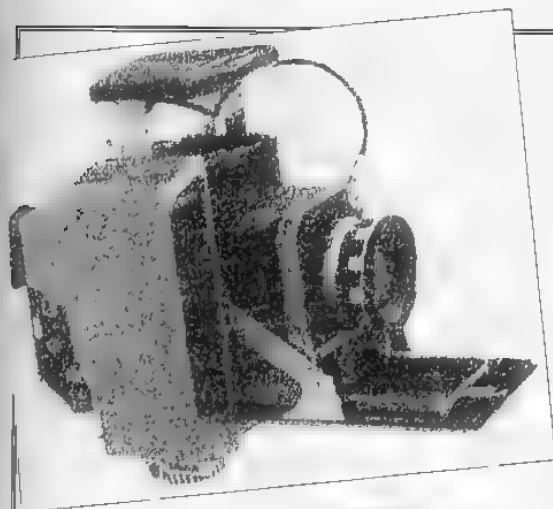
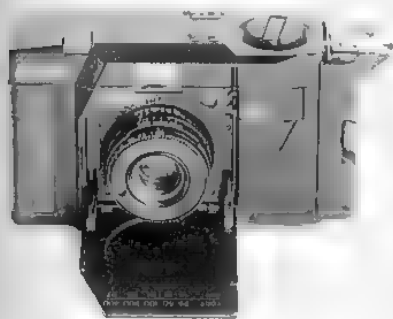
A620 - KIEV 35 AM with flash.

Doc. J. Daniel

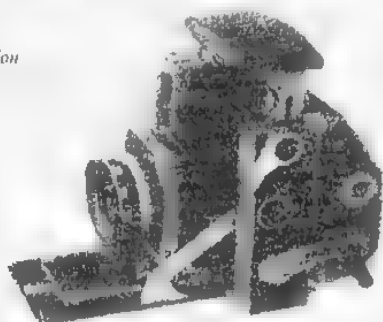
## KIEV-35AM c 1990

compact 35mm, front cover folds down to open camera  
Successor to the KIEV-35A, with new design. Speeds: 2s-1/500s. Hot shoe flash sync. Self Timer. Selected speed indicated by LED in finder. film speed settings: 22 - 700 GOST / 15 - 30 DIN. MC-KORSAR 2.8/35mm lens

A620



Document  
From the collection  
of A. Bronstein



## REPORTER 6x9cm

c1960-1961.

Shows in the July, 1960 issue of Sov. Foto next to an unknown reflex camera (see p.69), this is a new picture of the REPORTER, a camera we erroneously placed in the KMZ section of the previous edition. This professional-level medium format (6x9cm) camera once again bears the name of Ionnissiani's camera, the GOMZ. It is equipped with a 3.5/9cm ARGON lens in a Moment shutter, identical to the one used on the Moskva 4 or 5! Even so, it seems to have been manufactured and delivered by ARSENAL in 1961.

**Conceived by : V.J. Luntchenko and N.F. Serov**  
**Fewer than 10 pieces made.**

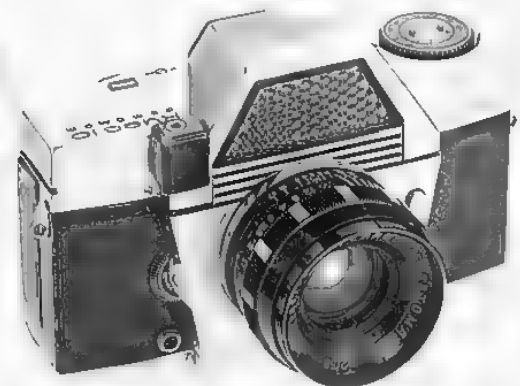
In fact this is a folding technical camera using 120 rollfilm for a format of 52x78mm with a large projected frame finder and coupled rangefinder/viewfinder.

- Russar 6.3/60 (or 65mm), 4/135mm and Telyar 5.6/200mm, mounted in Moment shutters with speeds: B-1s-1/250s.

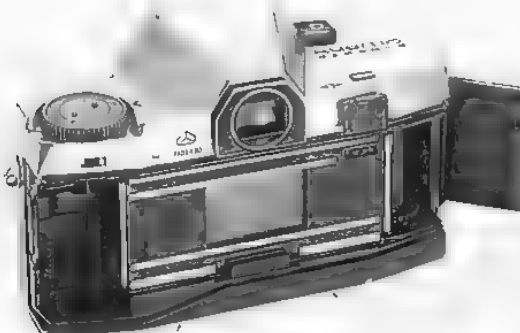




KIEV-10 AUTOMAT type-1



KIEV-10 AUTOMAT type-2



Obturbateur en "éventail" du KIEV-10

*With its decidedly peculiar design, the KIEV-10 is one of the very rare Soviet-made camera bodies that owes nothing to the West.*

*It is also the world's first full frame auto exposure 35mm reflex camera with focal plane shutter and interchangeable lenses.*

*And it is finally the world's only SLR with a metallic fan-bladed shutter.*

## **KIEV-10 Preserie 1964 A300**

Identical to the production model, but without the stripes beneath the meter cell and with HELIOS-65 2/50mm lens in chrome finish.

(see Kiev 11).

(The original instruction book presents camera #6400004 equipped with the HELIOS-65 in black finish, while another document shows camera #6400009 with a HELIOS-81.)

## **KIEV-10 AUTOMAT type-1 1965 - c.1970 A302**

Full frame automatic 35mm SLR with selenium meter.

Automatic feature with manual override. Needle in the finder shows settings.

Injection molded body. Instant return mirror. Lever wind.

Metal focal plane shutter in fan-bladed shutter.

Speeds: B; 1/2s - 1/1000s. X-sync at 1/60s.

Film advance capstan with a single tooth.

Hinged back. Rewind crank integrated into the bottom plate

**Unique bayonet mount.**

Diaphragm selector around lensmount, below shutter release button.

First delivered with HELIOS-65 lens, then with HELIOS-81 2/50mm, both with auto diaphragm coupling

Kit contains filters, adapter for 39mm screwmount (allowing use of all ZENIT lenses), film cassette and accessory shoe.

Although exported c. 1968 none marked in Roman letters are known.

## **KIEV-10 AUTOMAT type-2 c.1968 - 1975 A305**

Derivative model recognizable by the "KIEV-10" and "Avtomat" graphics inscribed on the top plate, instead of the front.

Mainly esthetic modifications:

Viewfinder ocular can now accept diopter correction lenses.

New design of diaphragm and speed selector rings, new strap lugs.

Additional film guide upstream of film gate.

## **Metal fan-bladed shutter of the Kiev-10.**

Metal focal plane shutter in fan-bladed shutter. (World's only camera with a shutter of this kind.) This principle gives the exceptional smoothness of a central shutter, with the simplicity of a focal plane shutter.

## KIEV-11 Prototype c.1970

The specialized Soviet press had had a field day when they saw the chrome finished lenses and the position of the lightmeter on the KIEV-10. Indeed, the reflections from the shiny chrome surfaces of these lenses had the effect of "blinding" the aforementioned meter. The lenses were immediately redesigned and offered in black finish.

At the same time, the engineers were working on a model with a displaced lightmeter, but which was soon forgotten with the appearance of the KIEV-15.

### Variant:

A KIEV-11 without visible meter but equipped with a chrome HELIOS has been seen on the WEB.



KIEV-11 prototype Doc. Felix Portnov

— Lenses that can be used on the KIEV-10 automat, KIEV-11; the KIEV-15TEE and TTL



A330 - MIR-1 AUTOMAT



A335 - ERA-18 AUTOMAT

### A320 - MIR-20 AUTOMAT

3.5/20mm - c1980

### A330 - MIR-1 AUTOMAT

2.8/37mm - c1980

### A335 - ERA-18 AUTOMAT

1.2/50mm - c1978

### A340 - HELIOS-65 AUTOMAT

2/50mm (voir A305)

### A350 - HELIOS-81 AUTOMAT

2/50mm (voir A302)

### A351 - HELIOS-81 AUTOMAT

2/53mm

### A355 - GRANIT AUTOMAT

3.5/45~80mm - c1969

### A360 - VEGA-21 AUTOMAT

2/85mm - c1972

### A365 - JUPITER-9 AUTOMAT

2/85mm - c1980

### A370 - JUPITER-11 AUTOMAT

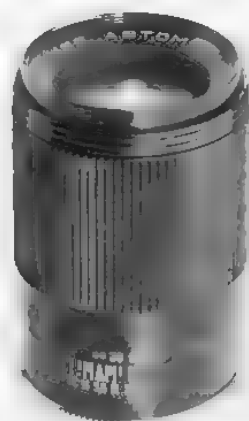
4/135mm

### A380 - TAIR-11 AUTOMAT

2.8/135mm

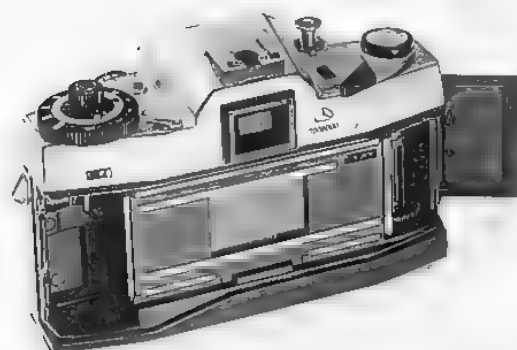
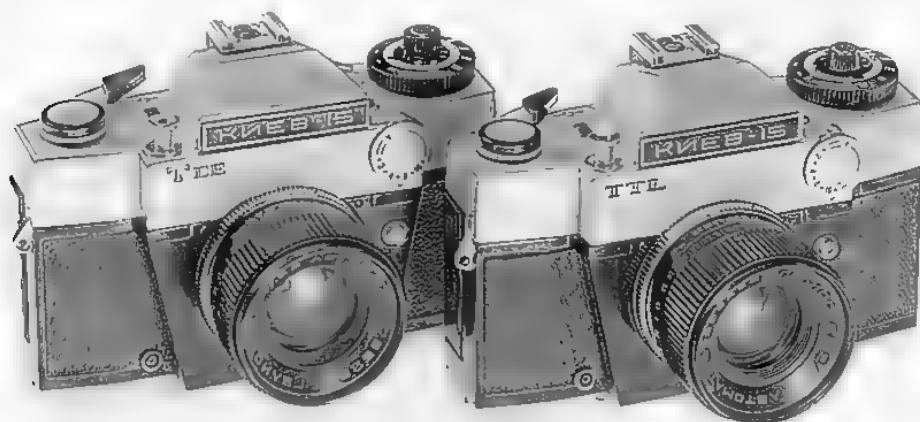
### A390 - GRANIT-11 AUTOMAT

zoom 4.5/ 80~200mm  
c1980



A370 - Jupiter-11 AUTOMAT

With the KIEV-15, the Ukrainian reflex stops looking like a T-34 tank, and at last begins to resemble a T-55 instead... However, it is a camera that is agreeable to use, thanks to the smoothness of its controls.



Fan-bladed shutter of the KIEV-15

## KIEV-15 TEE 1974 - c.1980

**A310**

Specifications identical to those of the KIEV-10, but with redesigned top plate. The KIEV-15 gets a new meter using two CdS cells measuring through the lens.

The diaphragm control wheel, set beside the prism housing, is adjusted by the left index finger.

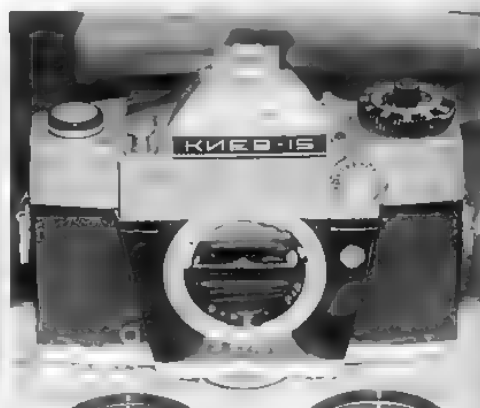
HELIOS-81 2/50mm lens.

## KIEV-15 TTL c.1980 - c.1985

**A315**

Identical to the KIEV-15TEE, with "modernized" electronic elements, and the internationally known designation "TTL".

Takes all the lenses of the KIEV-10.



KIEV-15. Engraved "75th Birthday of L. I. BREZHNEV". The entire outfit was destined for Comrade President Leonid. The lenses are also specially engraved with the dedication. Doc. Felix Portnov

# KIEV-17/19/18

# КИЕВ-17/19/18

By bringing out the first Soviet camera using the NIKON bayonet, ARSENAL declares its independence from the Pentax "K" bayonet adopted and used by KMZ, LOMO and BeLOMO.

## **KIEV-17 1977 - 1984**

**A400**

35mm SLR. Viewfinder shows 100% of subject.

Vertical-running metal focal plane shutter, speeds: B; 1 - 1/1000s.

Shutter speed selector on front of camera; self timer.

Hot shoe flash contact.

Strap lugs.

Delivered with HELIOS-81M 2/ 53mm, later with VOLNA-4 1.4/ 53mm or 50mm.

*Variant:*

A401 - KIEV-17 black body. (also called KIEV 17B c. 1978).



KIEV-17 "grey leather covering" Document M1 Mission

## **KIEV-20 ou KIEV-17M c.1978 - 1986**

**A410**

35mm SLR identical to the KIEV-17 but with TTL CdS meter.

Semi-automatic operation.

Delivered with HELIOS-81N 2/53mm

or VOLNA-4 1.4/53mm



KIEV-20 equipped with HELIOS 81N 2/53mm

## **KIEV-19 c.1985 - c.1990**

**A420**

35mm SLR identical to the KIEV-20.

semi-automatic operation, with TTL metering. LED in finder.

Speeds: B; 1/2 - 1/500s. no self timer.

Delivered with HELIOS-81N 2/50mm (compact).

*Variant:*

A421 - KIEV-19 in roman letters.



KIEV-19 equipped with compact HELIOS 81N 50mm

## **KIEV-19M c.1988 - ...**

**A425**

Similar to the KIEV-19, with "modernized" black finished body.

Delivered with HELIOS-81N 2/50mm (compact)

*Variant:*

A426 - KIEV-19M chrome body

## **KIEV-18 c.1987 - ...**

**A430**

35mm SLR. Fully or semi-automatic operation.

Totally redesigned black finished body.

Electronic shutter, with shutter speed dial on top of body.

Speeds:

- in auto mode: B; 4s - 1/1000s, X-sync at 1/125s.

- in semi-auto mode: B; 1s - 1/1000s.

Electronic self timer

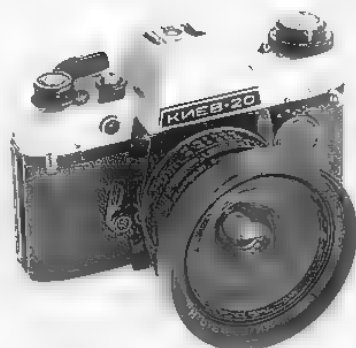
Delivered with VOLNA-4 (N) 1.4/50mm

Can take motor drive (Motor MP-18 c1988).



KIEV-18 equipped with VOLNA-4

## Lenses for KIEV-17, 20, 19, 19M and 18 in "NIKON" mount



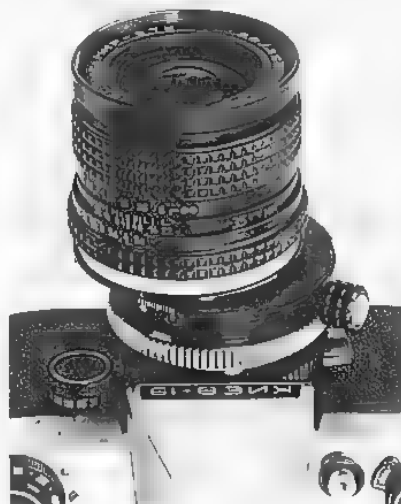
**MIR 20N** Doc. M. Masson



ERA-18 Doc. B. Jamblichuk

- A520 - VOLNA-4**  
1.4/53mm
- A525 - VOLNA-4**  
1.4/50mm
- A550 - ARSAT-N c1994**  
1.4/50mm and 2/50mm...

- A530 - ERA-18 c1978**  
1.2/50mm never produced
- A535 - VOLNA-8N c1990**  
1.2/50mm



**MIR-67N on KIEV19**  
Doc. M. Masson

- A450 - ZENITAR-N**  
2.8/16mm "Fish-eye"

- A460 - MIR-20N**  
3.5/20mm 94°
- A470 - MIR-24N**  
2/35mm (99) 63°

- A480 - MIR-67N**  
2.8/35mm (99)  
Perspective control lens.
- A482 - MIR-67 (K) c1992**  
idem 67N mais pour Zenit
- A485 - ARSAT-N Made in Ukraina**  
2.8/50mm  
Perspective control lens.

- A500 - HELIOS-81M**  
2/53mm  
Variant: engraved HELIOS-8M
- A510 - HELIOS-81N**  
2/53mm
- A515 - HELIOS-81N**  
2/50mm (compact)

- A550 - KALEINAR-5N**  
2.8/100mm (99) 24°5

- A560 - TELEAR-N**  
3.5/200mm 12°

- A565 - YACHMAR-4N c1990**  
2.8/300 mm (99)

- A570 - YANTAR-14N 75~29°**  
2.8-3.5/28~85mm

- A572 - YANTAR-20N 63~12°**  
3.5-4.5/35~200mm

- A575 - GRANIT-11N 30~12°**  
4.5/80~200mm

- A576 - ARSAT-N 30~12°**  
4.5/ 80~200mm

- A580/ Converter K2-N**  
2x tele-converter

The names of virtually all the "N" lenses (N) start with "MC", Multi-Coated, in Roman letter.  
The designation MC, Multi-Coated, which very often doubles the previous series, is not indicated, because already treated

## KIEV - VEGA... the offshoots



### "The Drifts"

For several decades quantities of fake spy cameras, based of the mechanical elements of the KIEV-VEGA, have shown up.

We now know that the "fake" John Player Special cigarette packs were simply that - fakes. (159)

Numerous stories and rumors suggested that they had been used by secret services of the KGB type.

These turned out to be massive smoke screens covering the true spy cameras of the F-21 or "Totchka" types.

Sometimes you find exactly what you are looking for...

Soviet copy of the KONAN-16 Automat (rechristened MINOLTA-16 in 1957, the KIEV-VEGA were produced starting by the VEGA factory, an affiliate of ARSENAL. There were two series: 1960 - 1964, then 1975 - 1990 and two formats: 10x14mm then 13x17mm. (75)

## **VEGA - KIEV-VEGA c.1960 - 1962**

## **A1000**

Subminiature 10x14mm, using 16mm film in special one piece cassettes with built-in feed/takeup spools. Aluminum body. Viewfinder window with icons and lens opening protected by flat glass plates. Minox-style "push-pull" cocking and film advance.

Viewing and shutter release possible only when camera is in extended position. (76)

Guillotine shutter; speeds: 1/30 - 1/60, 1/200s. with flash sync. (76)

Fixed focus 3.5/25mm un-named lens to begin with; later Industar-M 3.5/23mm, with no change to the viewfinder. Shutter cocked reminder on lens protection cover.

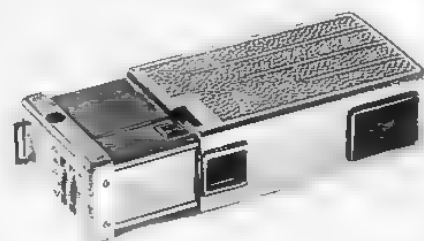
5-digit serial numbering. Combined Cyrillic/Roman letter logo as on later Kiev 35mm cameras. Dimensions: 24.5x43.5x86mm - 180g.

**Variants:**

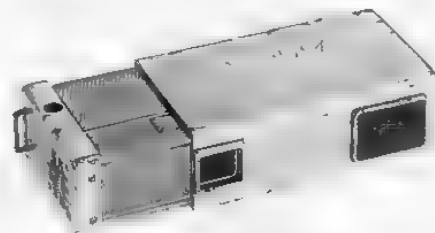
A1000 - engraved КИЕВ-ВЕГА - 3.5/25 mm lens.

A1001 - engraved ВЕГА - 3.5/23 mm lens.

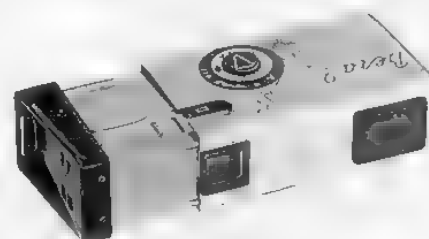
A1002 - Engraved KIEV (Roman letters) - Industar-M 3.5/23 mm lens.



**A1000 - KIEV-VEGA Industar 3.5/23mm lens**



**A1001 - VEGA Industar 3.5/23mm lens**



**A1010 - VEGA-2 Industar 3.5/23mm lens**

## **VEGA-2 1961 - 1964**

## **A1010**

Identical to the KIEV-VEGA, but with Industar-M 3.5/23mm lens, focusing from 0.5m - ∞ (at 0.5m = field covered is 25x33cm.)

The focusing control wheel is located in an indentation near the shutter release button. End of body redesigned for better grip.

Calculator disk with symbols on body top. Serial numbering changed to normal dating system during production run.

**Variant:**

A1011: VEGA-2 graphics with Roman letters.

## **KIEV-30 1974 - 1983**

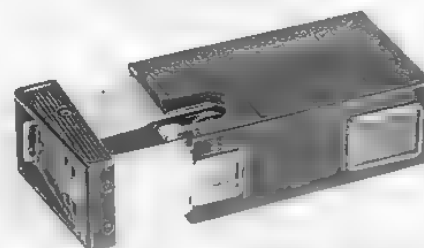
## **A1020**

**about 1 million units made.** In a camera very little larger than its predecessor, the format is increased about 25% to 13x17mm on unperforated 16mm film.

Same lens, same viewing angle, different format (76)

The calculator disk is moved to the rear, near the viewfinder window, now featuring a round window instead rectangular, as used on the VEGA.

Dimensions: 28x46x86mm, 190 g.



**A1020 - KIEV-30**

## **KIEV-30M 1987 - 1989**

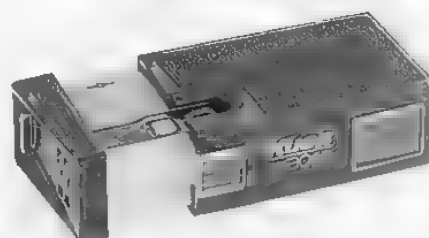
## **A1030**

Identical to the KIEV-30, but without flash sync or calculator disk.

KIEV-30M logo (in Cyrillic) silk screened on the façade.

**Variant:**

A1031 - KIEV-30M with "official military markings:" hammer and sickle surrounded by the star and "1989" engraved between the viewfinder and the lens windows, plus "KIEV 1949-1989" on the rear. (Doubtful origin!)



**A1030 - KIEV-30M**

## **KIEV 303 a/c 1990**

## **A1040**

Mechanism identical to that of the KIEV-30M, but in a pretty new plastic body.

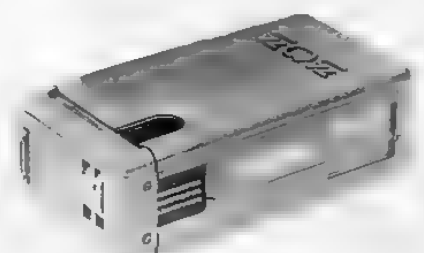
Level of finish generally lower than that of the KIEV-30 models.

Speeds: 1/30-1/60-1/125-1/250s.

**Variants**

A1040: green body; A1042: red body; A1043: white body;

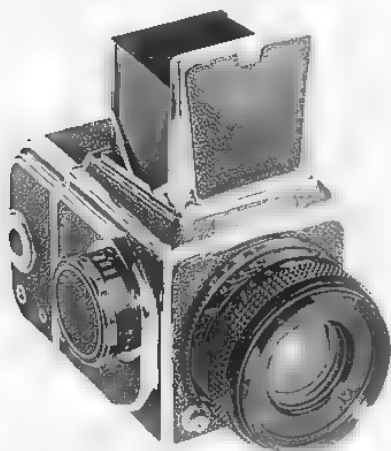
A1044: grey body; A1045: black body; A1046: blue body.



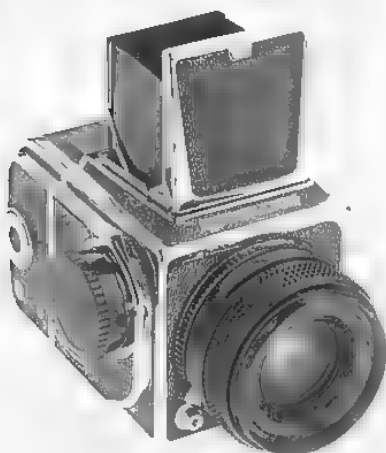
**KIEV 303 A1040 green Doc P.H. Pont**



**A661 - SALYUT** - Document V. Olivier



**A670 - SALYUT-S** - Document J. Daniel



**A680 - KIEV-88** - Document J. Daniel

Note: The magazine backs can only be used on Hasselblad bodies after modification to the light proofing channels.

Hooked on the production of sophisticated mechanical devices, ARSENAL decides around 1956-57 to work on copying the famous HASSELBLAD 1600F, another rather complex western camera.

## **SALYUT "SALUT" 1957 - 1972**

**A661**

6x6 SLR with interchangeable magazine backs. Interchangeable waist-level finder. Vertical running metal focal plane shutter

Speeds: B; 1/2 - 1/1500s. X and M sync.

Lens: Industar-29 2.8/80mm, semi-automatic diaphragm delivered in a leather outfit case, with a second magazine back.

Variants:

A660 - two shutter release buttons (first series)

A661 - single shutter release button with chrome speed dial

A662 - identical, but with speeds to 1/1000s., black speed dial.

A663 - marked ZENITH-80 (with Industar-29)

A664 - marked REVUE 6x6 (with Industar-29) (100)

A664 - marked REVUE-80 (Foto-Quelle, 1971, with I-29, MIR-3 and TAIR-33)

A665 - marked VITOFLEX (73) (with VITOFLEX 2.8/80mm)

## **SALYUT-S (S) 1972 - 1980**

**A670**

Identical to the SALYUT with speeds: B; 1/2 - 1/1000s. X and M sync fully automatic diaphragm.

delivered with VEGA-12 (V) 2.8/90mm

Variants:

A671 - marked SOYUZ with SOYULAR 2.8/90mm

(Harrison Cam. USA, c. 1978, with MIR-26, MIR-38 and JUPITER-36)

## **KIEV-80 c.1975 - 1980**

**A675**

Identical to the SALYUT-S. delivered with VEGA-12 (V) 2.8/90mm, then VOLNA-3 (V) 2.8/80mm. Can be equipped with accessory TTL metering prism.

Variants:

A676 - KIEV-80 in Roman letters. A677 - ZENITH-80 (with Vega-12).

## **KIEV-88**

**A680**

Identical to the KIEV-80 but with hot shoe. VOLNA-3 (V) 2.8/80mm lens; many accessories. Very complete line of lenses (see p. 220).

Variants:

A681 - KIEV-88 in Roman letters.

A682 - CAMBRON (Cambridge Camera - USA)

## **KIEV-88 TTL 1980 - 1994...**

**A685**

Identical to the KIEV-80 but delivered with TTL metering prism. VOLNA-3 or ARSAT 2.8/80mm lenses. 45° mirror finder, "Polaroid" back, ground glass back, extension tubes, all available as accessories.

## **KIEV / KIEV 6x6**

c.1994...

MADE IN UKRAINE

**A690**

## **KIEV-SIX / BIG six c.1994...**

MADE IN UKRAINE

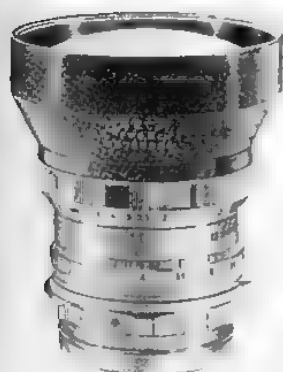
Based on the KIEV-88, with improvements, and equipped with the bayonet of the KIEV-60. (136-137)

## **KIEV BIG TTL.**

**A695**



# Lenses for SALYUT - KIEV-80 - 88 (B =V), pour KIEV-6S - 60 et KIEV-90 (Б =B)

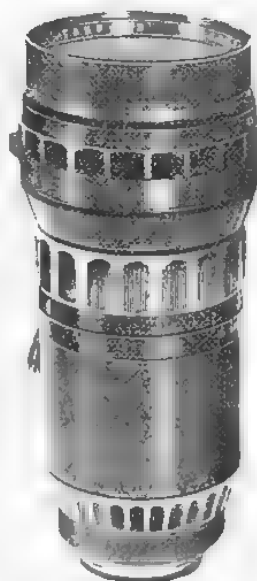


## A810 - MIR-3

c. 1957 3.5/66mm

Version V (Salyut)

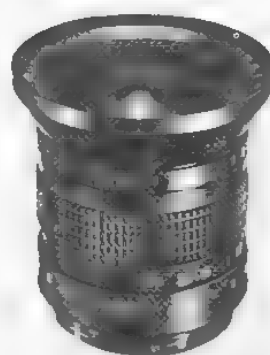
Variants: two-toned or black



## A860 - MIR-26

c. 1978 3.5/45mm

Version B (Kiev-6S)



## A870 - Jupiter-36

c. 1975 3.5/250mm

Version B (Kiev-6S)



## A830 - TAIR-33

c. 1957 4.5/300mm

Version V (Salyut)

			SALYUT	SALYUT-C	KIEV 80	KIEV 88	KIEV 6C	KIEV 60	"BIGsix"	KIEV 90
ZODIAK-8	3.5 / 30mm	180°				*c1988		*c1986		*c1988
ARSAT	3.5 / 30mm	180°				c1994			c1994	
MIR-26	3.5 / 45mm	83°			*c1978	c1980	*c1974	*c1984	c1994	*c1988
MIR-26	3.5 / 46mm		*c1970 (101)							
MIR-38	3.5 / 65mm	66°		*c1975	*c1975	*c1984	*c1971	*c1984	c1994	*c1988
MIR-3	3.5 / 66mm	65°	*c1957-70				c1970			
MIR 3C (espace)	3.5 / 65mm						c1970			
Industar-29	2.8 / 80mm	53°	*c1957-70							
VOLNA-3	2.8 / 80mm	53°		*c1978	*c1980	*c1980				*c1988
ARSAT B	2.8 / 80mm	53°				c1994			c1994	
VEGA-2	2.8 / 85mm	50°	*c1960-70							
VEGA-12	2.8 / 90mm	47°		*c1972	*c1975		*c1971	*c1984		*c1988
Industar-56	2.8 / 110mm	43°	*c1957-70							
VEGA-28	2.8 / 120mm	41°				*c1988				
VEGA	2.8 / 150mm									
KALEINAR-3	2.8 / 150mm	28°			*c1978	*c1984	*c1975	*c1984	c1994	*c1988
JUPITER-36	3.5 / 250mm	19°		*c1975	*c1978	*c1984	*c1974	*c1984	c1994	*c1988
TELEAR-4	3.5 / 250mm	19°				*c1988		*c1986		*c1988
TELEAR-5	5.6 / 250mm	19°				*c1986		*c1990	c1994	*c1988
TAIR-33	4.5 / 300mm	15°	*c1960-70				*c1974			
TAIR-33C (espace)	5.6 / 300mm						c1970			
ARSAT	5.6 / 500mm								c1994	
ZM-3	8 / 600mm	7°30				*c1984	*c1975	*c1984	c1994	*c1988
K6B Converter	x2					c1990		c1990	c1994	

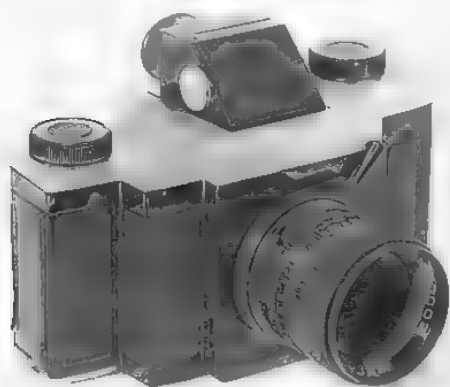
Note: Lenses designed for the Salyut, KIEV-80 ou 88 cameras (in "V" mount (B in Cyrillic) have a flange depth of 82.1mm.

B lenses (Б in Cyrillic) with a flange depth of 74mm are designed for KIEV-6, 6C, KIEV-90 and KIEV-SIX cameras.

Lenses marked with a \* are engraved "Made in USSR". Otherwise, they are mostly marked "Made in Ukraine". (17)

# KIEV-SKD KIEV-S

# КИЕВ-СКД КИЕВ-С



Documents  
M.P. Mladek



*These special cameras are reputed to have equipped each Soyuz space flight, as well as the joint Soviet-American Soyuz-Apollo flights. Around ten KIEV SKD were made. The KIEV-S was delivered to a firm located in the suburbs of Moscow that constructed "interplanetary spacecraft"*

## **KIEV-SKD c.1967 - 68**

**A950**

6x6cm SLR with inverted image viewing.  
Horizontal running focal plane shutter, cocked by electric (28V) drive or manually  
VEGA-2 2.8/85mm bayonet-mount lens.

## **KIEV-S c.1970 - 71**

**A960**

6x6cm SLR with horizontal running focal plane shutter (speeds 1/2 - 1/1000s.) cocked by electric (28V) drive or manually  
VEGA-12S 2.8/90mm bayonet-mount lens.  
Interchangeable magazine backs using 70mm film.

*Other lenses:*

- MIR 3S 3.5/65mm
- TAIR 33S 5.6/300mm

# KIEV-90

# КИЕВ-90



**A900 - KIEV-90 - Document M. Masson**



## **KIEV-90 c.1983-85 ou 87 - 1990**

**A900**

*Around 2000 units made.*

*Like a "sea serpent" of the Soviet (later Ukrainian) photographic industry, the mysterious KIEV-90 was briefly and sporadically sighted in the late eighties by followers of medium-format equipment. It would briefly surface at international shows, then remain out of sight. Its rarity at the collector fairs and shows suggests an extremely limited production run.*

*During the 1990's a rumor announcing a possible joint effort by the Japanese firm MINOLTA in the KIEV-90 made the rounds, adding further luster to the mystery surrounding this camera.*

4.5x6cm SLR with aperture-priority automatic, semi-auto, and manual modes. Interchangeable lenses, focusing screens, viewfinders, and magazine backs. Metering by LED's visible in the finder.

Vertical running focal plane shutter with electronically controlled timing. Speeds: B; 4 - 1/1000s.; X-sync at 1/60s.; double shutter release buttons. Green-tinted mirror; pink-tinted metering area.

Bayonet breech-lock lens mount of the PENTACON-6/KIEV-60 type.

Delivered with MC VOLNA-3 2.8/80mm lens.

Range of lenses identical to those for KIEV-60.

Delivered with two magazine backs which can be exchanged in mid roll.

Backs each have built-in film speed indicators with electrical connectors to meter circuitry on camera body.

# KIEV-6S

# КИБ-6С

**FK6** Présérie c.1970

**A700**

**Concepteur : V.J. Luntchenko**

Inspired by the Pentacon-6 (and by the ZENIT-70 ?) this "FOTO-KAMERA-6" is quite special, with its left-hand operated shutter release and eccentric winding lever. The breech-lock bayonet is identical to that of the PENTACON-6. Thus it can use the entire range of lenses in this mount, made by Meyer, Carl Zeiss Jena, Schneider (for the Exakta-66), Kilfitt, Novoflex, etc...



**KIEV-6S c.1971 - c.1980**

**A710**

6x6 SLR using 120 film. Interchangeable viewfinders (waist-level or pentaprism.)

Lever wind; Left-handed shutter release.

Focal plane shutter, speeds: B; 1/2 - 1/1000s. X-sync.

Strap lugs.

Delivered with VEGA-12 (B) 2.8/90mm lens, with available extension tubes, filters, sunshades, flash grip.

**Accessory:** CdS meter prism.

**KIEV-6S TTL c.1980 - c.1986**

**A715**

Identical to the KIEV-6C, with modified front plate:

The KIEV-6C logo is now in chrome on a black background.

Delivered with CdS TTL meter prism; VEGA-12 (B) 2.8/90mm lens

**A710- KIEV-6C - Document J. Daniel**

# KIEV-60

# КИБ-60

**KIEV-60 TTL c.1984 - 1992...**

**A720**

Modified version of the KIEV-6TTL:

shutter release moves to the other side (now right-handed.)

Film counter with automatic reset !

2 strap lugs (as on the KIEV-80 or HASSELBLAD).

Delivered with VOLNA-3 (B) 2.8/80mm, and accessories.

(see lenses offered p. 223 and above).

**Variant:**

A725: KIEV 645. Identical to the KIEV-60 but with format masked to

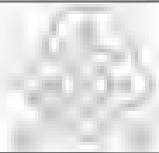
4.5x6cm vertical. (KIEV-USA). (124)

**Accessory:**

A750 - Projector (Peleng)



**A720 - KIEV-60 - Document J. Daniel**



ЗОНТ



ФРГ



УНИВЕРСАЛЬНАЯ ПЕРЕКЛАДКА  
ИЛИ АНТИОТРАЖАЮЩАЯ ПЛЕНКА



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# MMZ - BelOMO

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ММЗ, БелОМО Завод	228	MMZ - BelOMO
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## MINSKI MEKHANICHESKI ZAVOD PELENG - NIVA - ZENIT - DIAPROJEKTOR

In 1957, with the aid of GOMZ and the GOI, the first buildings of the last of the great optico-mechanical factories of the USSR are established on the banks of the Vilja river in Minsk, capital of Belorussia - the Minsk Mechanical Works S. I. Vavilov (77). (MMZ = Minsk Mekhanicheski Zavod.)

On Mayday (May 1st), 1957 the factory celebrates by showing off its first products, the SMENA, along with its mechanical equipment, and its lens-grinding and polishing machines.

In the interval from May to December, over 20,000 SMENA are produced.

By the time the factory is completely finished in 1960, more than 300 lathes are in service.

1459 KN-11 movie projectors, 292,754 SMENA, and 4,428 ESTAFETA cameras are delivered, along with several hundred lathes.

In 1962, the Belorussian engineers strike out on their own and demonstrate their originality and independence, producing the VESNA and the SHKOLNIK, cameras aimed at the youth amateur market.

Begun in 1967, a new series of cameras, the half-frame CHAIKA is produced to the tune of over 2 million units.

In the early seventies, with the assistance of KMZ, a new site is developed for the production of ZENIT-E cameras.

Starting in 1973, nearly 5 million units of this camera are produced on the assembly lines of the VILIEKA factory;

however, the products do not enjoy a very good reputation in the eyes of the Soviet consumer.

Other cameras are phased into production after the ZENIT-E, starting in 1977, including the ZENIT-TTL, ZENIT-ET, ZENIT-11 and ZENIT-15 (Belorussian version of the ZENIT-SD.)



Facade of the BelOMO S. I. Vavilov factory in Minsk c.1995

Doc. BelOMO



Workshop with assembly line of Siluet-Electro c.1975.

On the wall a poster shows production goals (per the Five-Year plan) and actual production realized.

Doc. BelOMO

In 1971 MMZ and VILIEKA unite to become BelOMO (Optico-Mechanical Production Unit of Belarussia). This new firm maintains close contact with the parent company in Leningrad and under this arrangement produces the successors of the SMENA - the VILIA, SILUET and the ORION, all mass-market cameras based on the SMENA 8M and SMENA SYMBOL.

It seems that under pressure from the dominant Russian players in Krasnogorsk and Leningrad, all the original projects of the Belorussian firm were sacrificed: (ORION-KM, SILUET-RAPID, RASVET).

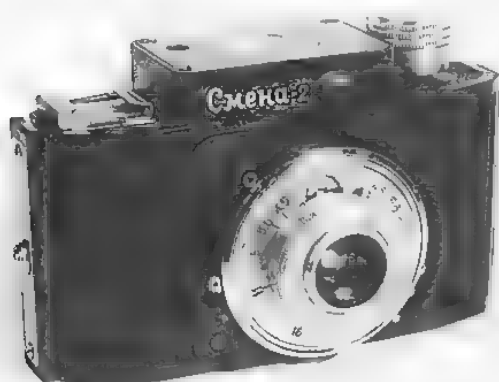
However, since BelOMO is still producing the ELIKON autofocus cameras in independent factory located in an autonomous country, the future may bring us some nice photographic surprises from this ex-Soviet outsider.

In addition to making industrial equipment, camera bodies lenses and accessories, MMZ and its successor BelOMO produce slide projectors under the PELENG brand (Peleng, meaning azimuth angle in Russian, being the factory's name), movie projectors, and night vision devices for still and movie cameras.

BELORUSSKOJE OPTIKO MEKHANICHESKOJE OBJEDINENIE







**Smena-2 GOMZ/MMZ** Doc. V. Songlop

Conceived by I. Shapiro in Leningrad in 1952, the SMENA is the Soviet stereotype of those bakelite cameras that one found all over the world in the thirties and forties. SMENA means "new generation", or "the changing of the guard"; as this name implies, it was aimed toward the young generation. Its production found a second wind in Minsk after the war.

**SMENA-2** 1957 - 1961.

**M10**

**SMENA** 1958

**M20**

**Twenty or thirty thousand units made**

Full frame 35mm bakelite camera

Central shutter. Speeds: B; 1/10 - 1/200s. T-22 4.5/4cm lens

Specifications identical to those of the GOMZ-built SMENA and SMENA-2 (p. 50)

On the first bodies assembled in Minsk, the focusing ring around the lens still has the GOMZ logo



**Smena-M 1961 - MMZ** Doc. V. Songlop

**SMENA-M** 1961

**M30**

In 1961 GOMZ, Leningrad abandons production of the original bakelite SMENA in favor of bodies molded in thermo-plastic (SMENA-5).

MMZ then takes over production of the former GOMZ SMENA-4 but with lower quality, without a lever wind, and with new, normalized shutter speeds: B; 1/8 - 1/250s and a self timer.

The lens is changed to a T-22M 4.5/40mm  
Camera apparently produced only in 1961.



**Smena-2M unfortunately incomplete.**

Doc. V. Songlop

**SMENA-2M** 1961

**M40**

An even more economical version of the SMENA-4/SMENA-M, without self-timer.

As with the SMENA-M, this camera seems to have been produced only in 1961.

*Like GOMZ, MMZ abandons bakelite in 1962 in favor of injection-molded polypropylene; the result is the VESNA.*

*Successor to the SMENA-M the VESNA is a really original, good-looking camera, with a very successful design. It keeps the lens/shutter assembly of its predecessor, but its real originality resides in its use of a magazine-type back, also adopted on the SHKOLNIK.*

## **VESNA "SPRINGTIME" 1962 - 1964**

Full frame 35 mm in injection-molded plastic.

Galilean finder.

Shutter identical to that of the SMENA-M, with new styling.

Speeds: B; 1/8 - 1/250 with flash sync.

uncoupled shutter cocking

Thumb wheel film advance, nicely integrated into the camera's bodywork.

shutter release and frame counter on top plate.

hinged pressure plate

T-22 4.5/40mm lens

### *Variants:*

M50 - faceplate in aluminum

M51 - faceplate in black

VESNA nameplate in transparent plastic characters on a brushed metal background with a grid pattern.

Serial numbers in the '62 date range (+6 digits).

M52 - VESNA nameplate in transparent plastic characters on red background

Serial numbers in the '62 - '63 date range.

M53 - VESNA nameplate raised plastic letters (VESNA model 3).

7 digit serial numbers without date prefix.

**M51**



Vesna - Doc M. Masson



Vesna - Doc M. Masson



Vesna: view of the winding mechanism - Doc M. Masson

## **VESNA-2 1964 - 1966**

*(Vesna model 4).*

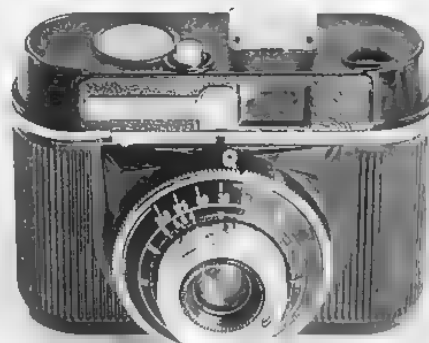
Identical to the VESNA, with a new lens: T-43 4/40mm and speed range reduced to 1/15 - 1/250s.

### *Variants:*

M60 - VESNA-2 nameplate with interwoven number and name

M61 - VESNA-2 nameplate with number "2" on other side of viewing window.

**M60**



Vesna-2 - Doc M. Masson



Chaika



Chaika-II



Chaika-3



Chaika-2M

## **CHAIKA "SEAGULL"**

1965 - 1967

**M70**

Conceived by V.I. Terechkov.

About 180 000 units

Half frame, metal bodied 35mm camera.

Galilean viewfinder

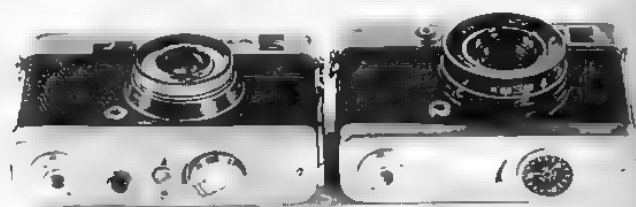
leaf shutter behind the lens; speeds: B; 1/30 - 1/250s. flash sync.

rewind crank under the body

Industar-69 2.8/28mm lens

*Variants:*

Various forms of the Chaika logo in both Cyrillic and Roman letters.



Chaika and Chaika II

## **CHAIKA-II 1967 - 1972**

**M75**

More than a million units.

Identical to the CHAIKA, with some minor modifications, such as the replacement of the rewind crank by a knob, a new shutter release design, but particularly the incorporation of a 39mm screwmount so that the Industar-69 lens could be used on an enlarger.

(Even though the instructions "forbid" this disassembly.)

*Variants:*

- various forms of the logo in both Cyrillic and Roman letters.
- Various finish materials and colors, including light grey, dark grey, bordeaux red, dark brown, green, etc.

## **CHAIKA-3 1971 - 1973**

**M80**

More than 500,000 units.

The CHAIKA-3 is the first camera signed BelOMO.

The body is modernized, a bright-line finder and selenium meter (16 - 250 GOST) are incorporated.

Settings are made on the top plate.

lever wind located under the body (1971 - 1972.)

accessory shoe.

*Variants:*

M80 - CHAIKA with lever wind

M81 - CHAIKA with knob wind

CHAIKA nameplate in Roman letters (unconfirmed.)

## **CHAIKA-2M 1972 - 1974**

**M90**

More than 350,000 units.

Identical to the CHAIKA-3 but without meter..

## SILUET RAPID-AUTO c1970

production code:

*Vesna-3M 105.000.000. (138)*

Half frame 35mm amateur camera

18x24 mm format with Orwo-SL

"RAPID" type cartridges (see Smena Rapid p. 52)

Spring motor cocking and film advance

Automatic operation with choice of 2 programs, each with its own release button.

Bright frame finder with parallax correction

marks for close focus at 0.8m.

Leaf shutter behind the lens; speeds: B; 1/30 - 1/250. flash sync.

Scale focusing with symbols

Target sales price: 70R

Dimensions: 110x89x48mm.

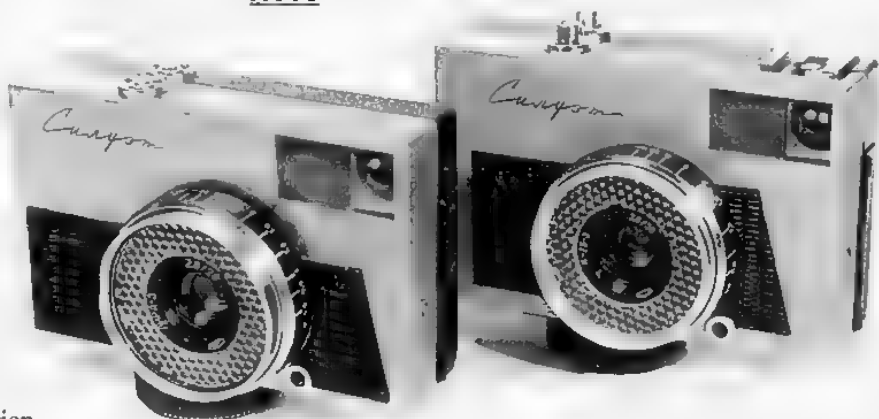
*variants:*

M110 - LIRA-4 2.8/28mm lens, with accessory shoe

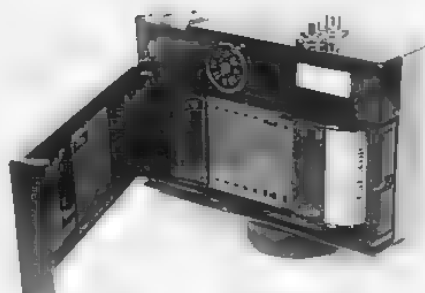
M115 - Industar 75-3 2.8/30mm lens.

M117 - may have existed in 24x24mm format

M110



Siluet Rapid Auto M110 equipped with the LIRA-4 lens (left) and M115 with Industar 75-3 lens  
*Documents Sacha+Victor*



## SILUET RAPID c1970

production code: *Vesna-5 108.000.000*

Specifications similar to those of the preceding models, but manual exposure and lever wind.

Industar-65 2.8/28mm lens

M120

# AGAT

# АГАТ

## AGAT-18 "AGATE" 1984 - 1989

M130

Half frame 35mm plastic compact,

Galilean viewfinder

Programmed exposure f:2.8-1/60 - f:16-1/250s.

Flash sync.

scale focusing with symbols, in various colors (red or yellow)

Industar-104 2.8/28mm lens

transparent plastic lenscap

## AGAT-18K 1988 - ...

M140

Modification of the AGAT-18

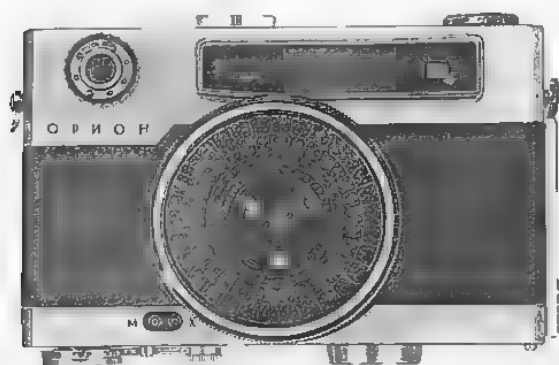
lenscap in black plastic



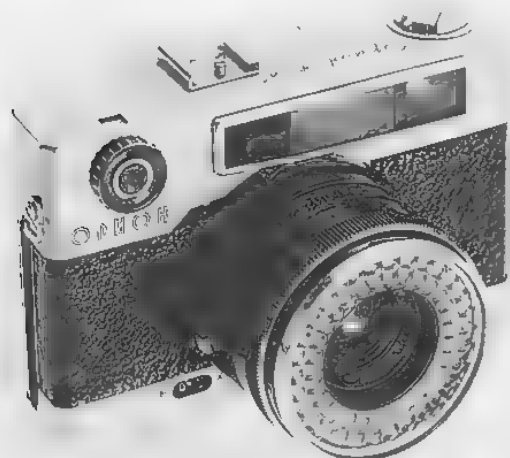
AGAT-18 et AGAT-18K

# ORION-KM

# ОРИОН-КМ



ORION-KM Doc. BeLOMO



ORION-KM Doc. D. Schetba

## ORION KM c1964

M150

Prototypes N° 00000007 et 00000012

**Only a few units made.**

production code: KM.MINSK (106.000.000)

Full frame coupled RF/VF 35mm camera with projected framelines  
Speed-priority automatic with manual override  
shutter release lock for underexposure, indicated in the finder.  
central shutter; speeds: B; 1/30 - 1/500s.; M/X sync  
lever wind located underneath the body; ready signal in finder  
voluntary double exposure by disengagement of wind mechanism.  
rewind by retractable crank.

Industar-70 2.8/50mm lens (erroneously marked 2.8/28 on the M151).

Target sales price: 200R (very expensive for the Soviet market.)

Had it been produced, the ORION KM would have competed with cameras such as the CANONET (1961), the RICOH 35V (1961), the KONICA EE Matic (1963) but also the ZORKI 10 et 11 (1964) ...

**Variant:**

various sizes of ORION logo

# VILIA - ORION

# ВИЛИА - ОРИОН

*The true successor to the SMENA and the VESNA, the VILIA, SILUET and the ORION could also be related to the LOMO SMENA-SYMBOL*

## VILIA "VILIA" 1973 - 1986

M160

**More than 2 million units.**

Mass market full frame 35mm camera.

Galilean finder.

Bilingual nameplate.

Lever wind; crank rewind.

Central shutter: speeds: B; 1/30 - 1/250s.. Hotshoe

TRIPLER T-69-3 4/40mm lens



M160 - Vilia

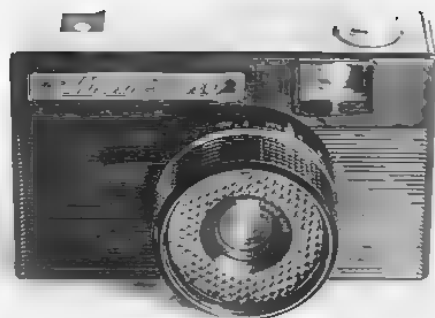
**VILIA-AUTO c.1974 - 1986****More than 2 million units.**

Identical to the Vilia, but automatic, with selenium meter around the lens.  
 Combined diaphragm/shutter behind the lens  
 TRIPLET-69-3 4/40mm lens (56°).

**Variants:**

focusing ring exists in several colors

M171 - VILIA-AUTO in Roman letters.

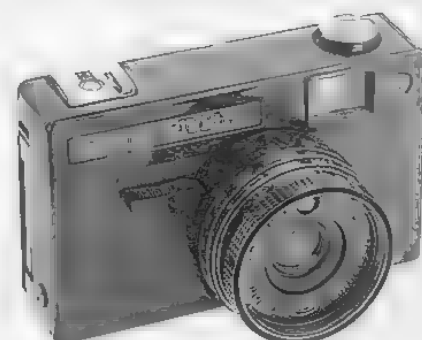
**M170****M170 - Vilia Auto****VILIA-ELECTRO preseries in 1973****SILUET-ELECTRO c.1975 - 1991 - ...**

Identical to the VILIA-AUTO, but with CdS meter  
 bright-line finder

First mass produced camera with and electronic diaphragm/shutter  
 exposure range: 8s at f:4 - 1/250s. at f:16; B; 1/30s. in manual mode  
 exposure indication by LED in viewfinder.

**Variant:**

M186 - SILUET ELECTRO "60th Anniversary" (1917-1977)

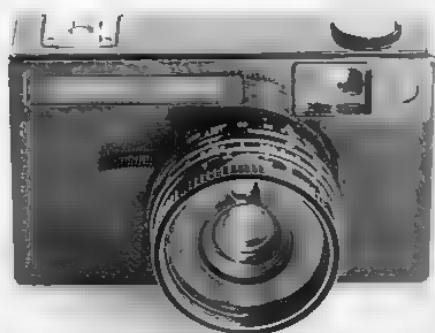
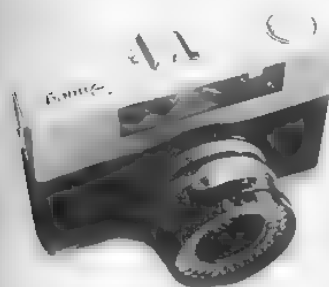
**M180****M185****M185 - Siluet elektro****VILIA-EE****ORION-EE 1976 - c.1980****More than 500,000 units.**

Identical to the SILUET-ELECTRO, but with reduced range of shutter speeds  
 in auto mode, starting at 1/30s.

**Variants:**

M196 - SILUET-ELECTRO with shutter speed range 1/15s. - 1/250s.

M196 - SILUET-ELECTRO "60 anniversary"

**M190****M195****M195- Orion EE****M200- Etude****ETUDE c.1967****M200**

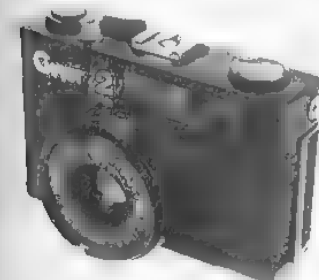
Prototype full frame 35mm with annu-  
 lar selenium meter  
 T48 2.8/45mm lens

**SILUET-AUTOMAT 1977 - c.1980 (prototype)****M205**

Full frame 35mm. Bright-line viewfinder. Metal body with auto shutter.  
 exposure range: 8s. at f:2.8 to 1/500s. at f:16. Industar-92 2.8/38mm lens.

**Variant:**

M206 - SILUET-AUTOMAT in black finish

**M205- Siluet Automat****M215- Siluet 2****SILUET-2 ou ORION-2****c.1990****M210****Only a few units produced.**

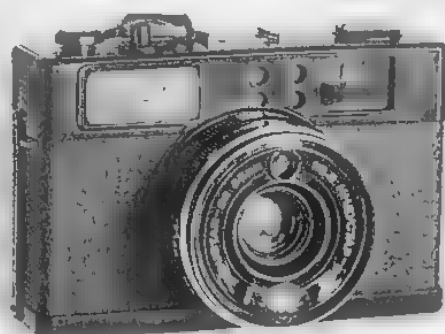
Identical to the the SILUET-AUTOMAT.

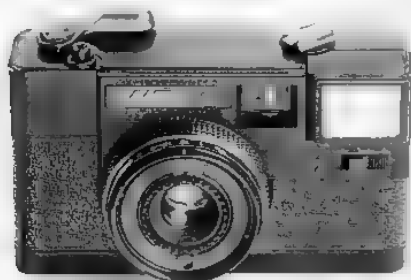
**Variant:**

M215 - ORION-2 nameplate

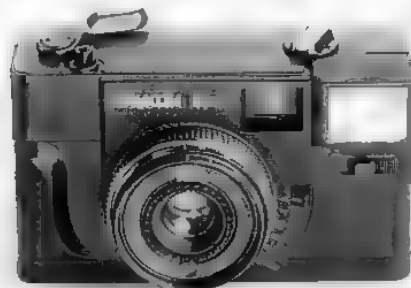
**VILIA-35A c.1985/1990****M220**

Ultimate development of the SILUET-AUTOMAT.  
 The ELIKON 35, then under development, replaced it.

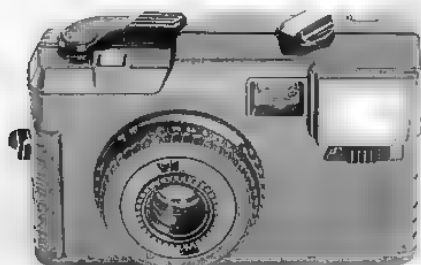
**M215 - Vilia 35A**



**Elikon-35C** - Doc. J. Daniel



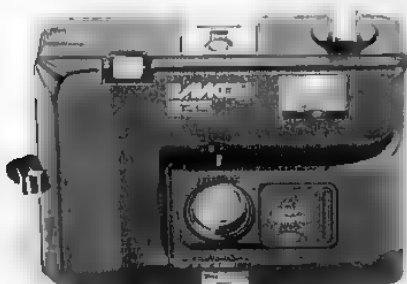
**Elikon-35CM** - Doc. J. Daniel



**Elikon-4** - Doc. J. Daniel



**Elikon-Autofocus** - Doc. J. Daniel



**Elikon-535** - Doc. J. Daniel

## **ELIKON-35S** 1985 - ...

**M230**

Based on the SILUET, the ELIKON-35C is the first Soviet camera with automatic exposure and built in flash. (130)

Electronic shutter 1/8-1/500s. Industar-95 2.8/38mm lens.

**Variants:**

M232 - ELICON 35C EF, in Roman letters

M233 - ELICON 35C EV, "Program Auto" in Cyrillic letters

## **ELIKON-35SM** c.1990

**M235**

Derivative of the ELIKON-35S with manual position

## **ELIKON-3** 1986 - c.1990

**M240**

Mass market full frame 35mm, successor to the VILIA-AUTO and SILUET.

Injection molded plastic body with built in electronic flash.

Single speed (1/125s.) electronic

shutter behind the lens

The diaphragm is set according to the

film speed, from f:4 - 16.

LED underexposure indicator.

MINAR 4/35mm lens



**Elikon-3**

## **ELIKON-4** 1988 ... **M245**

Simplified version of the ELIKON-3

with MINAR or I-95-02 lens

titanium grey finish

## **ELIKON-AUTOFOCUS** 1987 ...

**M250**

Identical to the ELIKON-35S but with autofocus, the first Soviet camera with this feature.

1/8-1/500s shutter speeds

Industar-95 2.8/38mm lens

**Variant:**

- Various cyrillic nameplates

## **ELIKON** c.1987

**M260**

## **ELIKON-1** 1988 - ...

**M265**

Full frame 35mm compact with electronic shutter. Speeds: 1/10-1/500s.

MINAR-2 or MINITAR-2 2.8/35mm lens

**Accessory:** FE-29 electronic flash.

## **ELIKON-535** c.1990

**M270**

full frame 35mm compact .

MINAR-2 or MINITAR-2 2.8/35mm lens.

## **MINSK** c.1988

**M280**

Full frame 35mm autofocus compact . (0.80m - ∞)

Speeds: 1/8 - 1/500s. 2.8/35mm lens.

## **MINSK-3**

**M285**

Identical to the MINSK but with reduced speed range: 1/30 - 1/500s.

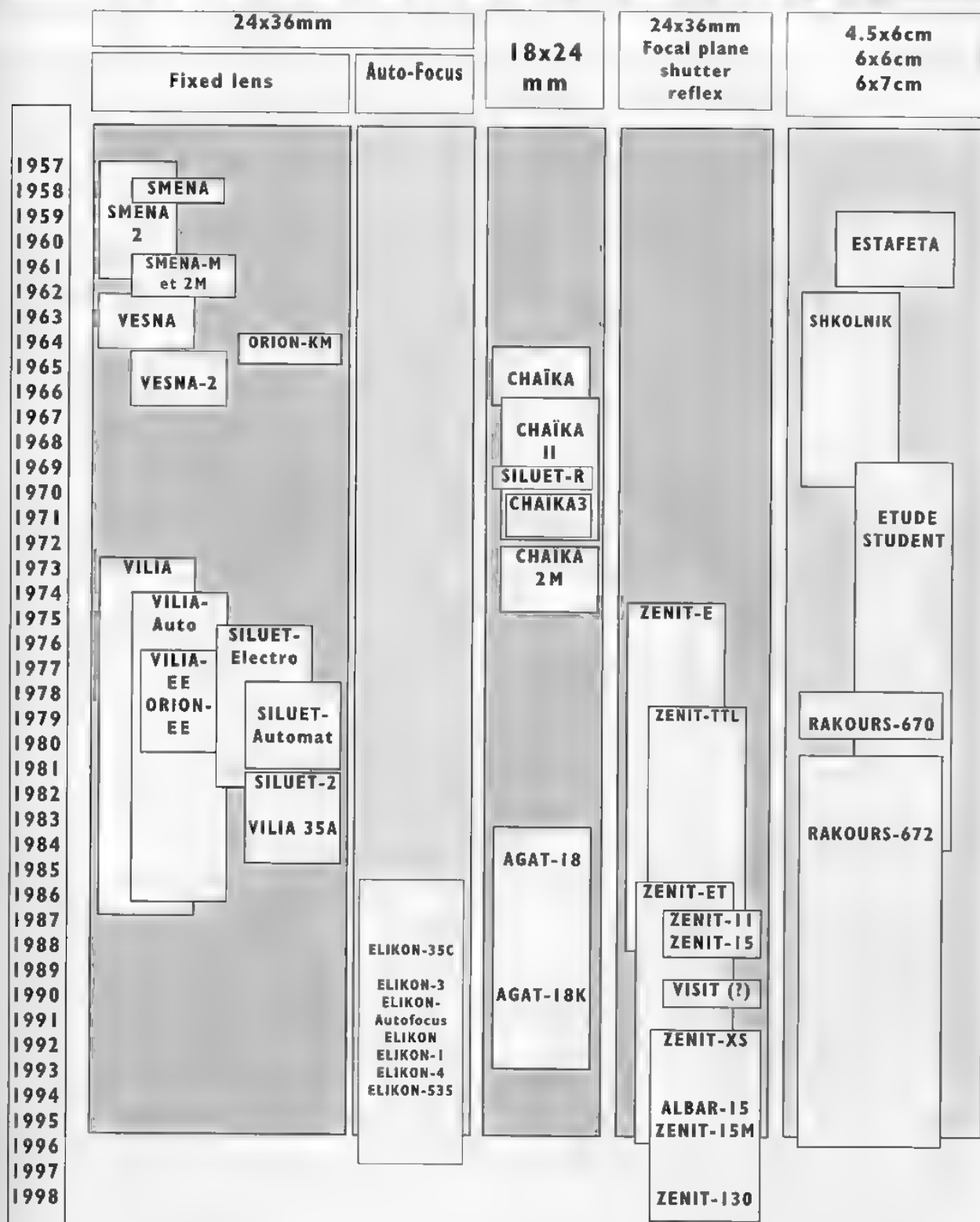
## **MINSK-2**

**M290**

Identical to the MINSK but with bi-focal lens 3.5/38mm and 6/65mm.

*To this day I have never seen a single one of these three cameras.*







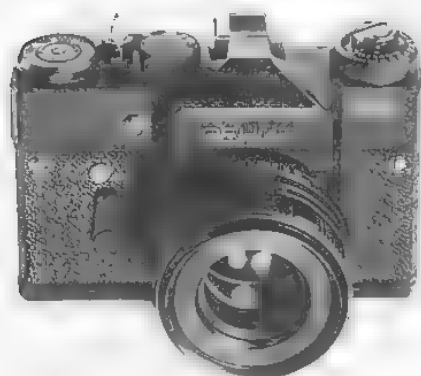
M302 - ZENIT-E - Doc. J. Daniel



M303 - ZENIT-E - Doc. J. Daniel



M310 - ZENIT-TTL - Doc. J. Daniel



M321 - ZENIT-ET - Doc. J. Daniel

In 1971 production of SLR cameras begins at the ZENIT-VILIEKA factory. MMZ and VILIEKA then merge to become BelOMO.

The first ZENIT-E see the light of day in 1973. The camera rapidly acquires a very bad reputation among amateurs for its extremely unreliable service. Even so, more than 5 million units are made.

### **ZENIT-E "ZENITH" 1973 - 1986**

**M302**

Full frame 35mm SLR.

Identical to the original "Made in Krasnogorsk".

Identification possible thanks to the rudimentary finish and the symbol on the rear of the body.

HELIOS 44-2 lens with chromed sections on the focusing helical, and the MMZ logo.

**Variants:**

M300 - ZENIT-E identical to the original, chrome body.

M301 - ZENIT-E identical to the original, black body

M302 - ZENIT-E identical to the original, without ZENIT nameplate.

M303 - ZENIT-E engraved in Roman letters, with "E" on the rewind side.

M304 - ZENIT-E Olympic games.

- various coverings.

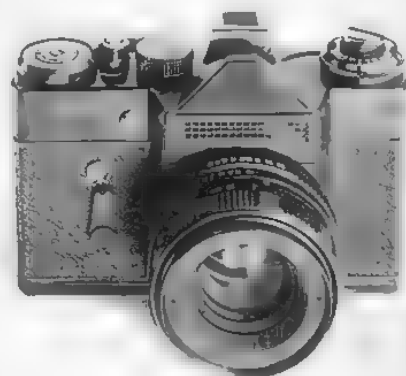
Production of ZENIT-E, TTL and ET began (respectively) in 1965, 1977 and 1981 at KMZ. (see p. 148- 174)

### **ZENIT-TTL 1977 - 1985**

**M310**

About 1 million units.

Identical to the original, with the same distinguishing features as the ZENIT-E. Delivered with HELIOS-44M.

**M320**

ZENIT-ET - Doc. J. Daniel

### **ZENIT-ET c.1984**

About 3 million units.

Identical to the original.  
delivered with HELIOS 44-2,  
later with 44M-2, 44M-4.

**Variant:**

M321 - Derivation of the ZENIT-ET, c. 1990 with a CdS meter under a new ABS plastic top plate. Delivered with HELIOS 44M-7.

This model is frequently a real disaster.

**ZENIT-11** 1985 - 1986

Identical to the KMZ version

**M330****ZENIT-15** 1985 - 1986

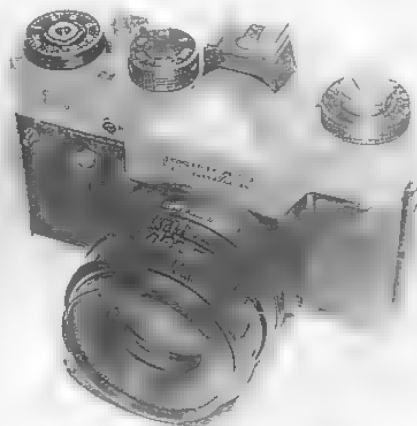
Identical to the ZENIT TTL.

**M340****VISIT** c.1988

Full frame 35mm semiautomatic SLR.

shutter: B; 1s - 1/1000s.

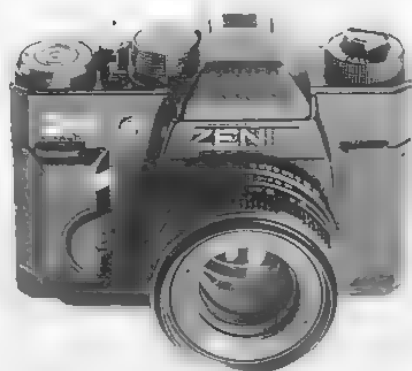
HELIOS-114K 1.8/50mm lens

*No further information about this camera has come to our attention.***M345****ZENIT-15** Doc. A. Berry**ZENIT-12XS** c.1990

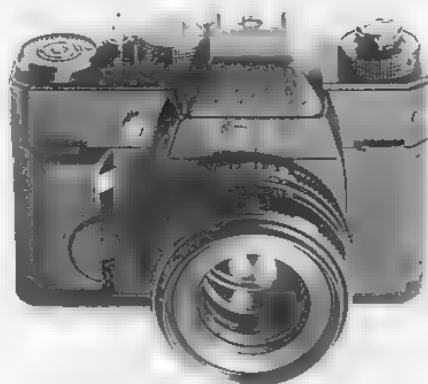
Identical specifications to those of the KMZ SD model, but in a modernized body. The body shell is now in ABS plastic, as with the ZENIT-ET. (147)

Shutter: B; 1/30 - 1/500s.

HELIOS 44M-6 lens

**M360****ZENIT-12XS** Doc. J. Daniel**ZENIT** "Made in BELARUS"**ALBAR-15** c.1993

Identical specifications to those of the derivative ET (M321), but in a redesigned body in ABS plastic. Shutter: B; 1/30 - 1/1000s.

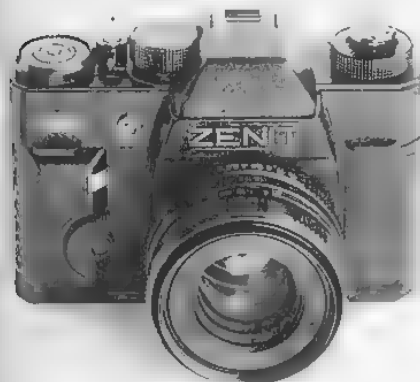
*"Made in Belarus"***M350****ALBAR 15** Doc. J. Daniel**ZENIT-15M**

c.1993

**M370**

Identical to the ZENIT-XS

Shutter: B- 1/30-1/500s.

*"Made in Belarus"***ZENIT-130** c.1998**M380**

New bodywork

Shutter: B-1/30-1/500s.

*"Made in Belarus"***ZENIT-130** Doc. A. Berry



Estafeta

## ESTAFETA "COURIER" 1959 - 1961

**M400**

Following the SMENA, the ESTAFETA is the next camera produced in 1959 by the brand new MMZ factory.

Designed by GOMZ in Leningrad (p. 49) like the SMENA. MMZ produces around 9,000 units during less than 3 years.

6x6cm format using 120 rollfilm.

The chassis of the camera is simplified and lightened compared to the original.

Galilean finder; retractable lens tube with safety lock.

ZT-13B shutter; speeds: B; 1/8 - 1/250s.

Cocking and release on the shutter itself.

Coated T-35 4/7.5cm lens, signed MMZ.

# SHKOLNIK

# ШКОЛНИК



Shkolnik

## SHKOLNIK "YOUNG STUDENT" 1962 - 1969

**M410**

About 500 000 units.

Mass market 6x6cm camera, using 120 roll film. Body in thermoplastic, often a little soft. Probably designed by the same team that designed the VESNA. Shutter: B; 1/60s. "Triplet" 8/75mm lens.

Variant:

M411 - Molded lens surround, with name.

*Like the Yoonkor from KMZ, the Shkolnik should perhaps be classified as a "Plan camera." It is likely that this sort of camera - cheap and easy to make in huge numbers, contributed greatly to the fat production curves reported by the various factories. Reported during endless speeches presenting the factories' results, these vast production quantities probably fooled no one, and certainly not the engineers of these factories.*

# ETUDE

# ЭТУД



Etude-Student. - Doc. KMZ

## ETUDE "ETUDE" c.1969 - 1974~1984

**M430**

Around 1 million units.

Produced in seriously huge quantity at Minsk beginning in 1969, the ETUDE seems to have been developed by KMZ (perhaps as a replacement of the YOONKOR) and was also made by them.

Mass market 6x6cm box camera using 120 rollfilm. Thermoplastic body, peep-hole viewfinder.

Shutter: B; 1/60s. Meniscus lens 11/60mm with 3 Waterhouse stops: f:11-16-22.

Variants:

M430 - ETUDE in Cyrillic characters

M431 - ETUDE in Roman letters.

M432 - called "STUDENT" (export markets).

*see also p. 235, another "Etude"*

Along with the LUBITEL and the NEVA, the RASSVET is the only Soviet attempt to produce a 6x6 TLR with international-level specifications.

## **RASSVET "SUNRISE" c.1960**

**Only a few dozen units.**

*Production code: LUBITEL-3 (103.000.000)*

Semiautomatic 6x6cm TLR

Ground glass focusing screen with fresnel field lens and automatic parallax compensation.

Knob wind with auto stops

Focusing by moving the lens standard with a cursor, like the Meopta.

5-blade shutter, speeds: B; 1s - 1/250s. X-sync at all speeds

Industar-58 3.5/75mm lens

Despite a full and satisfactory development, the RASSVET was not mass produced because the shutter supplier required a minimum order of 100,000 pieces; the projected sales of the camera were well below this figure. Estimated price: 180 Rubles, equivalent to 1 month's salary.)

*Variants :*

**M421** - Black face

**M422** - White face

**M423** - White face with Cyrillic symbol "Y" (for "U") I.58 3.5/75mm lenses (viewing and taking)

*#90011. The meter is replaced by a manual exposure calculator table.*

**M420**

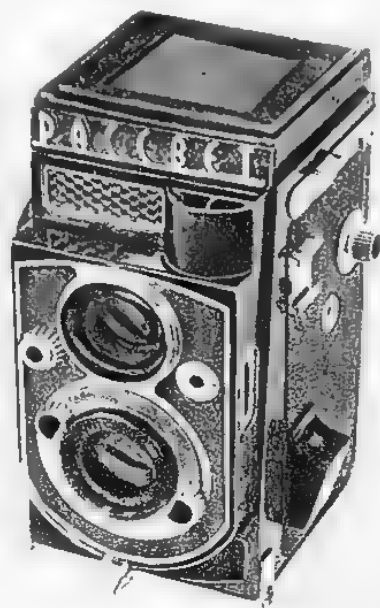
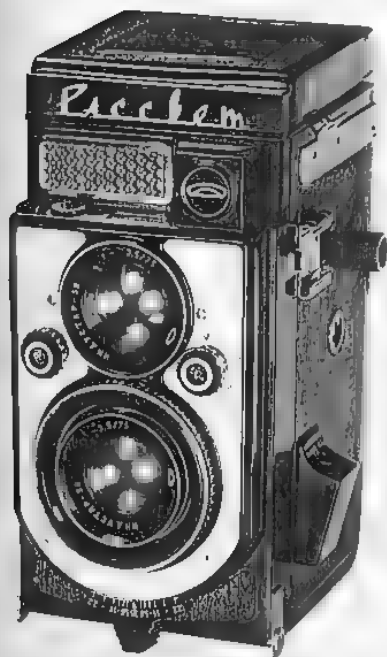
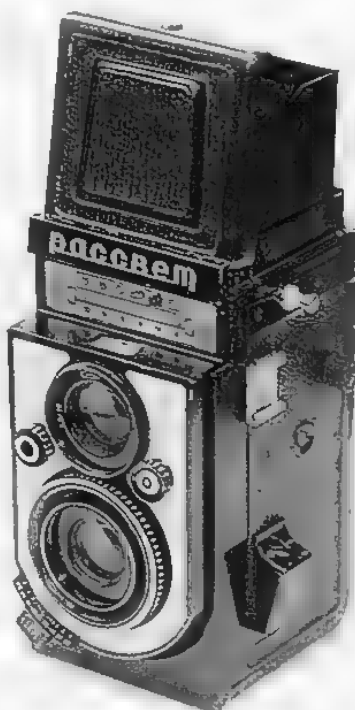


Illustration of the Rassvet as presented in the Soviet specialized presse.



**M422** - Rassvet with white face.  
Shutter release on the right  
*Doc. MMZ.*

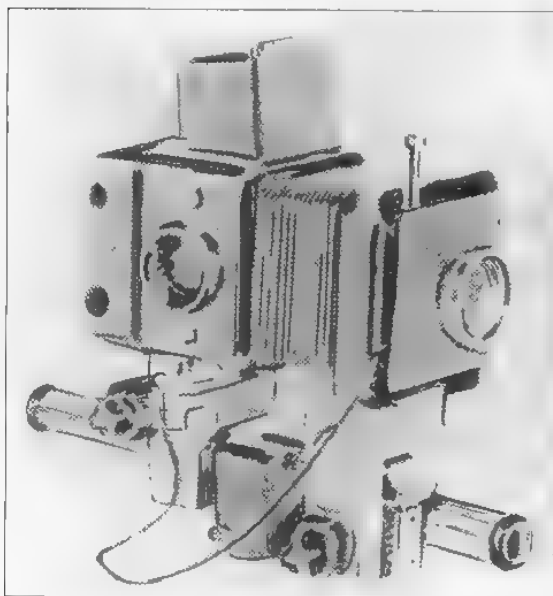


**M423** - Rassvet lenses: I.58 3.5/75mm #90011  
Focusing by cursor "à la Meopta".  
*Doc. R. MILCZAREK,*



# RAKURS-670

# PAKYPC-670



Rakurs-670

## RAKURS-670 "Perspective" or "angle of view" c.1978

Single lens 56x72mm monorail reflex camera, inspired by similar western cameras from SINAR, ARCA-Swiss or PECO-Flex.

Shifts and swings of both front and rear standards, the latter equipped with the reflex housing.

Leaf shutter with electronic controls (!)

Speeds: B; 2s - 1/60s.

120/220 rollfilm back.

Data inscription system for up to 8 digits on the edge of the negative.

*Interchangeable lenses announced:*

- VEGA-23 3.5/150mm

- VEGA-24 4.5/210mm

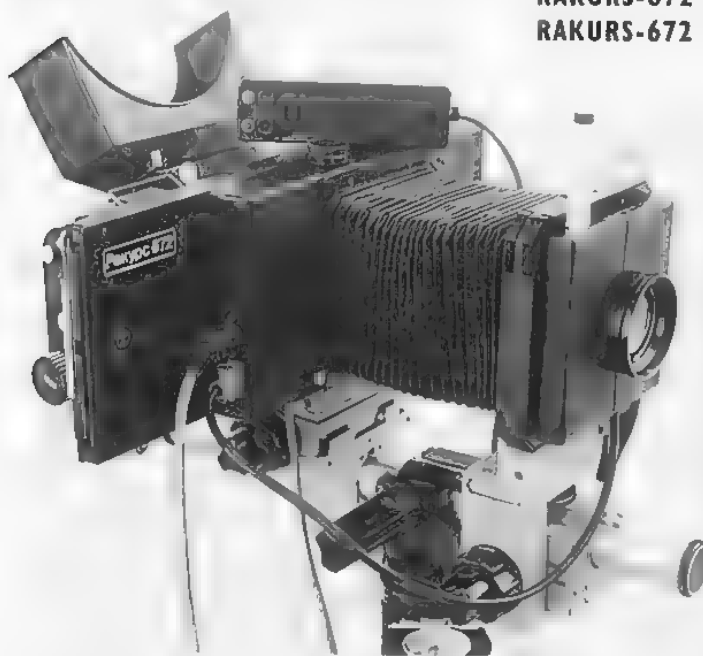
- MIR-41 3.5/90mm

# RAKURS-672

# PAKYPC-672

## RAKURS-672 Preseries c.1980

## RAKURS-672 Production camera, starting 1985.



Rakurs-672. Curiously only the front standard has the asymmetrical tilt mechanism.

What a pity!

Doc. P. Kazmierczak

Swiss inspiration is evident once again with this new model of monorail professional camera.

Format 4.5x6cm and 56x72mm.

- rear standard asymmetrical shifts and tilts (like those of the wonderful SINAR P.)

- Vertical and horizontal shifts only on front standard, without tilts.

micrometer focusing

electronic shutter, speeds: B, T; 4s. - 1/60s.

horizontally sliding back allowing quick change from reflex viewing device to rollfilm back.

Same range of lenses, on lensboards equipped with vertical setting mechanism.

*Accessories:*

extension tubes, extra magazine back, reflex viewing chamber, multiplier system, connector cables for the

shutter and control cables for front standard movements, carrying case.

## LENSES

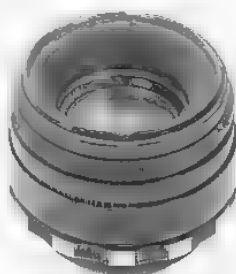
## ОБЪЕКТИВА



**M500 "Fish Eye" 3.5/8mm**  
"Made in BELARUS" c.1994  
Classic fisheye giving 180° coverage  
and a circular image on film.  
delivered with 42mm screwmount and  
Nikon bayonet mounts.



**M520 RUBIS "PELENG" 2.8/17mm**  
c.1996  
Ultra wide angle lens  
Delivered with 42mm screwmount  
and Nikon bayonet mounts.  
adapters for Canon mount



**M550 - HELIOS-44 2/5cm c.1960**  
Standard lens for the Zenit-E

**M560 - HELIOS-44-2 2/5cm c.1970**  
Standard lens for the Zenit-E

**M600 - HELIOS 44-3 2/5 cm c.1980**  
Standard lens for the Zenit-TTL

**M610 - HELIOS 44M 2/5 cm c.1980**  
Standard lens for the Zenit-TTL

**M620 - HELIOS 44M-4 2/5cm c.1980**  
Standard lens for the Zenit-TTL and  
Zenit-ET



**M630 - HELIOS 44M-6 2/5cm c.1980**  
Standard lens for the Zenit-TTL and  
Zenit-ET

**M640 - HELIOS 44M-7 2/5cm c.1990**  
Standard lens for the Zenit-XS and  
Zenit-ET

*Some of these lenses are marked with  
"VILIEK" or "VOLOGDA" logos.*

## VOSTOK

## ВОСТОК

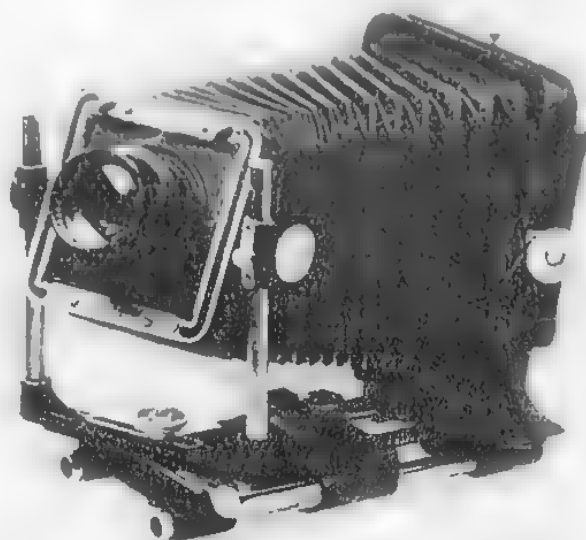
**VOSTOK c.1948**

**"THE EAST"**

Presented by the photographic press in a general roundup of Soviet triumphs, and later in a work by E. A. Oofis entitled FotoKinoTechnika, this fascinating technical camera was produced in tiny quantities in 1948 and '49 in Tashkent (Uzbekistan) by an aviation produces company (129). This is a 9x12cm camera with injection-molded aluminum frame, equipped with all shifts, swings and tilts. It was clearly destined for use by knowledgeable professionals.

The interchangeable front lens board takes the Industar-51 4.5/210mm, but no shutter seems to have been foreseen.

The rotating back takes double sided film holders that can be loaded with either glass plates or sheet film. Very precise focusing is done on the groundglass, by means of a focusing knob located between the two rails. Dimensions: 235x260x255mm. Weight: 3,76 kg.

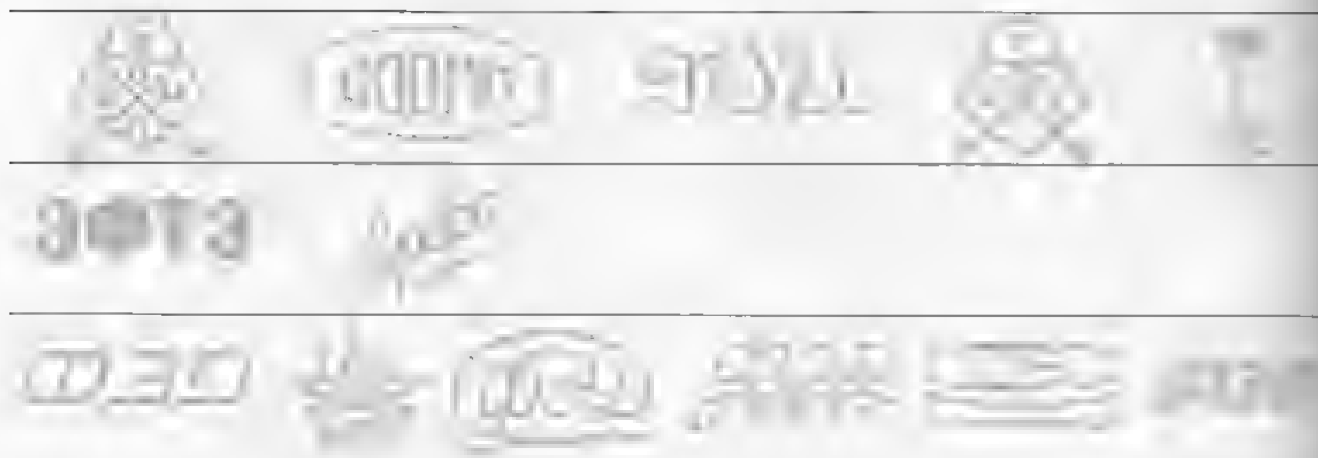


**Vostok .**  
A quality studio camera, unfortunately discontinued  
because it was too expensive to make in 1948

*Doc. Press Soviet*



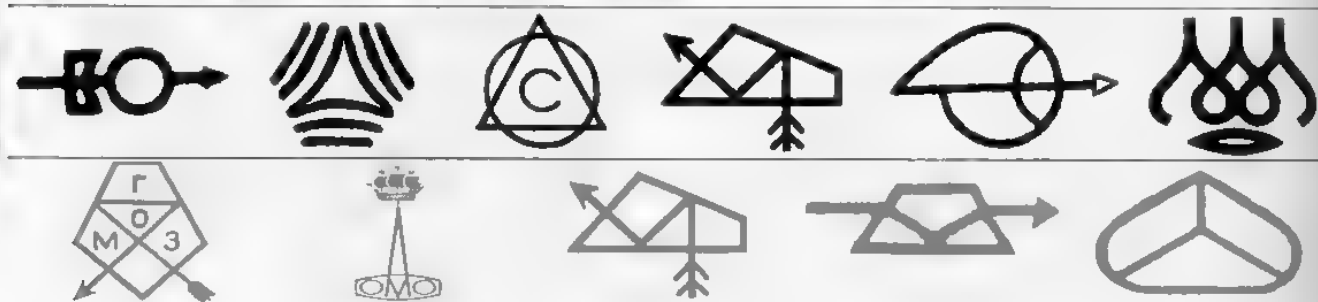
History of Russian cinematography  
from 1932 to 1990



ФАГ



МИНИАТЮРНЫЕ, ВОЕННЫЕ  
И ДРУГИЕ ОСОБЫЕ КАМЕРЫ



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# VOMZ - LZOS - KOMZ - ZOMZ - ROMZ

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ВОМЗ, ЛЗОС, КОМЗ, ЗОМЗ, РОМЗ	246	VOMZ, LZOS, KOMZ, ZOMZ, ROMZ
ВАЛДАЙ, ВОМЗ (ВОЛОГДА)	246	Valdai, VOMZ (VOLOGDA)
ЛЗОС (ЛУТКАРИНО)	247	LZOS (LUTKARENO)
КОМЗ (КАЗАН)	248	KOMZ (KAZAN)
ЗОМЗ (ЗАГОРСК)	249	ZOMZ (ZAGORSK)
РОМЗ (РОСТОВ)	249	ROMZ (ROSTOV)

# VOMZ - LZOS - KOMZ - ZOMZ - ROMZ

## ВОМЗ - ЛЗОС - КОМЗ - ЗОМЗ - РОМЗ

The names Valdaï, Vologda, Lutkarino, Kazan, Zagorsk, and Rostov do not resonate as centers of optico-mechanical production the same way as their more famous competitors: LOMO, KMZ, Zavod Arsenal or BelOMO. Nevertheless it is not unusual to come across a lens, an accessory, a binocular, an enlarger or, more recently, a night vision device, with a logo previously unknown in the West. In an effort to stay in the realm of this book's main subject - photographic equipment we present below only a few of the firms whose photo lenses have been widespread and will be recognized, such as the MIR from Zagorsk, the JUPITER-11 from Kazan, the JUPITER-9 and MTO-500 from LZOS, the HELIOS from Valdaï and from Vologda.

### Valdaï



### VOMZ



Vo30 - Helios-77

**Vo30 - HELIOS-77M-4 1.8/50mm**  
c1985 screw m. for KMZ ZENIT.  
**Vo40 - HELIOS-77K 1.8/50mm**  
c1985 K-bayonet for ZENIT

**Yo20 - MIR 47M 2.8/20mm c.1995**  
screwmount for ZENIT  
**Yo22 - MIR 47K 2.5/20mm c.1995**  
K bayonet for ZENIT.

**Yo30 - HELIOS-77M-4 1.8/50mm**  
c1985 screw m. for KMZ ZENIT  
**Yo40 - HELIOS-77K 1.8/50mm**  
c1985 K bayonet for ZENIT.

The industrial city of VALDAÏ is located on the Valdaï hills to the northwest of Moscow near the highest point of European Russia (at 350m/1150 ft.) which is on the continental divide separating European and Asian Russia.

The optico-mechanical factory of the same eponymous supplies, among others, the Helios-77M-4 and the Helios-77K to KMZ.

The VOMZ factory at VOLOGDA, located 600 km/350 mi. to the north of Moscow, has produced the 20mm MIR-47 and the 50mm Helios-77 for ZENIT in both screwmount and bayonet mount.

### Optek



**Op10 - JUPITER-3 1.5/50mm**  
1956 39 mm screwmount for ZENIT  
(124 143)

The logo seen on this lens was a mystery to us until we saw the September, 2001 issue of the RCCC bulletin (E400+L61). We will therefore use the name "OPTEK" for this enterprise (or workshop).

*We mention in passing that unknown logos continue to come to our attention, especially those marked on recent lenses.  
To be continued.*

## Svetozor... the Russian POLAROID®.

Polaroid® Corporation, inventor and manufacturer of instant cameras and films, signed with the Soviet Union Ministry of Atomic Energy and Industry a joint venture contract under the name of "SVETOZOR" (Bright Light).

On the very same day, a sales outlet for Polaroid® products opened in Moscow. Using American made parts at first, production of the 635CL camera was foreseen, along with the creation of a distribution network in the USSR (using 600 series film packs.) Even export of the finished products, based on their lower cost, was envisaged.

Apparently, everything remained at the stage of a wing and a prayer.

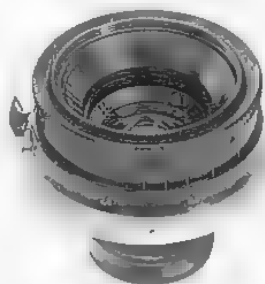
In 1990, the Soviet empire collapses. Like several other giants of American industry, the

## ЛУТКАРИНСКИЙ ЗАВОД ОПТИЧЕСКОГО СТЕКЛА LUTKARINSKII ZAVOD OPTICHESKOGO STEKLA

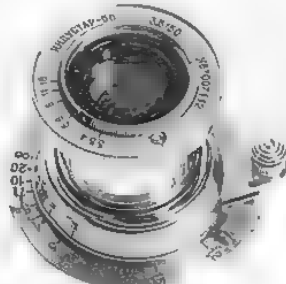
The city of Lutkarenko is situated less than 100km north of Moscow. The LZOS factory, a satellite of KMZ, primarily produces optical glass. Military division production is concentrated on laser and night guidance equipment, while the civilian production division is concentrated on microscopes, stereo microscopes, telescopes, binoculars, and photographic lenses, in 39mm and 42mm screwmount for still photography, and for cinema also. LZOS has a fine reputation for catadioptric (mirror) lenses, especially for the ZM4A 6.3/500mm, the first to be made in magnesium alloy.



**Lz20 - JUPITER-12 2.8/35mm**  
c.1960 KIEV bayonet



**Lz25 - JUPITER-12 2.8/35mm**  
c.1975 KIEV bayonet



**Lz10 - INDUSTAR-50 3.5/50mm**  
c.1960  
standard lens for the Zorki-5 and 6.



**Lz30 - JUPITER-9 2/85mm**  
c.1960 - KIEV bayonet  
in satin aluminum, polished, chromed, or clear coated.

**Lz32 - JUPITER-9 2/85mm**  
c.1960 - 39mm screwmount  
in satin aluminum, polished, chromed, or clear coated

**Lz35 - JUPITER-9 2/85mm**  
c.1975 - 1992 - KIEV bayonet  
black anodized finish

**Lz37 - JUPITER-9 2/85mm**  
c.1975 - 1992 - 39mm and 42mm  
screwmount for reflex.  
black anodized finish

See also the **JUPITER-9 2/85mm**  
p.145, 168, 210



**Lz50 - JUPITER-61LZ 2.8/50mm**  
c.1980 Exact focal length: 52.4mm  
42mm screwmount.

**Lz55 - JUPITER-61LZ 2.8/50mm**  
c.1985 New appearance

**Lz60 - INDUSTAR-61LZ 2.8/50mm**  
c.1980 Very close to the Lz50.

**Lz80 - YOLNA-9 MACRO**  
2.8/50mm c.1989 42mm screw m.

**Lz80 - YOLNA-9K MACRO**  
2.8/50mm c.1988 K bayonet

**Lz120 - MIR 1B 2.8/37mm**  
c.1988 42mm screw m.



### FOCALES VARIABLES:

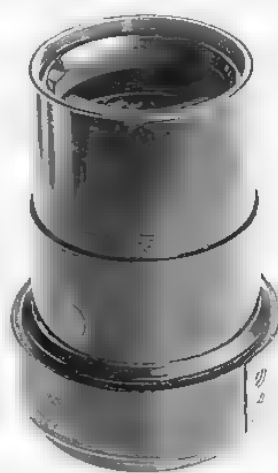
**Lz100 - GRANIT 4.5/80-200mm**  
c.1990 "NIKON-KIEV" mount.

### OBJECTIF POUR SALINT:

**Lz150 - INDUSTAR-29 2.8/80mm**  
c.1960 "SALINT-KIEV" mount

### ACCESSOIRE:

**TURIST FL:** Used with a lens from 50 to 1000mm, the "TURIST FL" creates a great spotting scope.



### OBJECTIFS CATADIOPTRIQUES:

**Lz200 - MTO 500A 8/500mm** c.1965.  
Successor to the KMZ MTO-500  
**Lz210 - ZM-4A 8/500mm**  
**Lz212 - ZM-5A 8/500mm**  
c.1971 et 1985 39mm and 42mm  
screwmounts; Exakta bayonet  
**Lz215 - ZM-5SA 8/500mm**  
**Lz220 - ZM-6A 6.3/500mm**  
c.1985

**Lz300 - MTO-11 10/1000mm** c.1965  
Successor to the KMZ MTO-1000  
**Lz310 - MTO-1000AM 10/1000mm**  
c.1970  
**Lz320 - MTO-1000A 10.5/1100mm**  
c.1977 - 42mm screwmounts  
**Lz330 - MTO-1000AM 10.5/1084mm**  
c.1990

### P.O. RUBIN OBJECTIFS CATADIOPTRIQUES:

**Lz230 - RUBINAR 8/500mm MACRO**  
c.1989. 42mm screwmount  
Successor to the ZM-5CA, with 2.20m  
close focusing.

**Lz240 - RUBINAR-K 8/500mm**  
MACRO c.1989. K-bayonet.

**Lz250 - RUBIN MTO 6.3/500mm**

**Lz260 - RUBIN MTO 10.5/1000mm**



## КАЗАНСКИЙ ОПТИКО МЕХАНИЧЕСКИЙ ЗАВОД KAZANSKII OPTIKO-MEKHANICHESKII ZAVOD

KAZAN, on the banks of the Volga River, is the capital of the Autonomous Republic of the TATARS. The Optico-Mechanical Factory of KAZAN, KOMZ, has made since the early fifties the coated TAIR 4.5/300mm for the new style FotoSniper FS-2, as well as lenses for Zorki and Zenit. (see below), slide projectors like the LETI-60, Industar-37 4.5/30cm et Industar-51 4.5/21cm lenses for the FK 13x18 and 18x24cm large format cameras, respectively, underwater housings for amateur cameras, loupes and lab material, civilian and military binoculars, and finally, aerial surveillance lenses for the Army, such as the URAN-27.



**Kz10 - Industar-22 3.5/50mm**  
c.1950

Sometimes seen on Zorki type 1.  
very unusual.



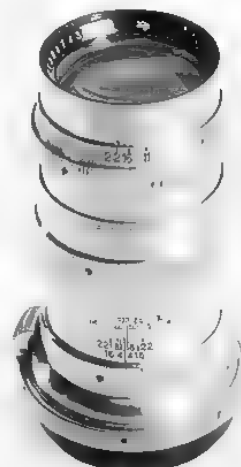
**Kz15 - Industar-22 3.5/50mm**  
c.1950 - in extended, rigid mount,

without focusing helical, for reproduction outfits. Rare

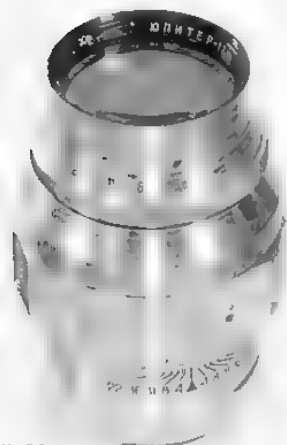


**Kz20 - Industar-50 3.5/50mm**  
c.1960

Sometimes seen on Zorki type 1  
Even more unusual.



**Kz30 - Jupiter-11 4/135mm**  
c.1960 KIEV bayonet mount  
aluminum, either chromed, satin or clear  
coated finish



**Kz50**

**Kz50 - JUPITER-11 4/135mm**  
c.1960 Preseries  
39mm screwmount for SLR, including  
ZENIT-3

**Kz60 - JUPITER-11 4/135mm**  
c.1965 preset diaphragm  
39mm screwmount for SLR, including  
ZENIT-3M and E

**Kz65 - JUPITER-11 4/135mm**  
c.1970  
42mm screwmount for SLR, including  
ZENIT-E, etc.

**Kz68 - JUPITER-11 4/135mm**  
c.1970  
Exakta bayonet mount

**Kz70 - JUPITER-11A 4/135mm**  
c.1970  
42mm screwmount for SLR, including  
ZENIT-E, etc.

**Kz80 - JUPITER-37A 3..5/135mm**  
c.1980  
42mm screwmount for SLR, including  
ZENIT

**Kz85 - JUPITER-37M 3.5/135mm**  
c.1980  
42mm screwmount for SLR, including  
ZENIT

**Kz90 - JUPITER-37K 3.5/135mm**  
c.1980  
K-bayonet for ZENIT 14-20-Automat-  
APK

**Kz100 - FODIS-1K 1.8/135mm**  
c.1986 Preseries by KMZ.  
Production by Kazan



**Kz85**

### LARGE FORMAT LENSES FOR FK CAMERAS

**Kz200 - Industar-51 4.5/21cm**  
c.1970. For FK 13x18 (see p. 79).

**Kz210 - Industar-37 4.5/30cm**  
c.1970. For FK 18x24 (see p. 79).

### LARGE FORMAT LENSES FOR RA-39A CAMERAS

**Kz250 - URAN-27 2,5/10cm**  
c.1970.  
Used on aerial camera RA-39A.  
The front element of the Uran-27 is heat-  
ed by a built-in resistance wires.



**Kz150 - TAIR 4.5/300mm FS-2**  
c.1963 Screwmount (see p. 39)

Dr. M. Kozlovskiy

# ZOMZ



# ЗОМЗ

## ЗАГОРСКИЙ ОПТИКО МЕХАНИЧЕСКИЙ ЗАВОД ZAGORSKII OPTIKO MEKHANICHESKII ZAVOD

ZAGORSK is 70 km north of Moscow, in the outer suburbs of the capital. It is a historical city, known for its monasteries, in particular the complex of the "Trinity of St. Sergei" dating from the 14th century, with its gilded domes. This is the modern-day center of the Orthodox church, and the Patriarch of all the Russias resides here. Little is known about the factory, under the KMZ military-industrial umbrella, except that it backs up the main factory in production of 39mm screwmount and Kiev mount lenses like the Jupiter-3 and the Orion-15; and 39mm and 42mm screwmount lenses for SLR's, including the famous MIR-1 et Tair-3A, which both earned medals at the Brussels World Fair in 1958.



**Zg30 - ORION-15 6/28mm**  
c.1965 aluminum 39mm screw mount. Uncommon.

**Zg35 - ORION-15 6/28mm**  
c.1965 KIEV bayonet mount. very rare. (144)



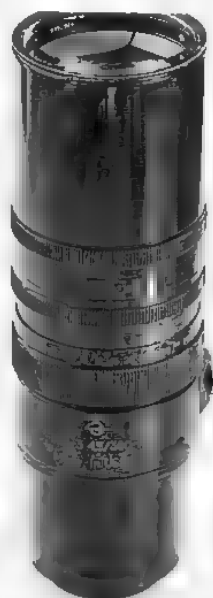
**Zg10 - Jupiter-3 1.5/50mm**  
c.1962 - Chrome 39mm screw mount. uncommon

**Zg15 - Jupiter-3 1.5/50mm**  
c.1963 - KIEV bayonet mount. rather rare.

**Zg50 - MIR-1 2.8/37mm c.1970**  
42mm screwmount for ZENIT-E etc.

**Zg55 - MIR-1B 2.8/37mm**  
42mm screwmount for ZENIT-E etc.

**Zg58 - MIR-1 2.8/37mm c.1970**  
Special mount for LENINGRAD/FAS (L240 - p. 60)



**Zg80 - Tair 4.5/300mm FS-2**  
c.1963 screwmount (see p. 39).

# ROMZ



# РОМЗ

## РОСТОВСКИЙ ОПТИКО МЕХАНИЧЕСКИЙ ЗАВОД ROSTOVSKI OPTIKO MEKHANICHESKII ZAVOD

"Great Rostov" is a historic city near Yaroslav, north of Moscow. The optico-mechanical factory at Rostov mainly makes military equipment. Iconomechanophiles will recognize the ROMZ logo, representing three intertwined "onion" domes, on some night vision devices, with or without laser guides, cluttering the tables of certain tables at collector shows.

**Bakelite or thermoplastic viewfinders**  
for 85mm and 35mm lenses  
on 35mm cameras. (142)





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## И ДРУГИЕ ОСОБЫЕ КАМЕРЫ





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Amateur movie cameras GOMZ - LOMO - KOMZ - KMZ - Arsenal

# Amateur movie cameras GOMZ - LOMO - KOMZ - KMZ - Arsenal

Over the last two decades, while compiling vast quantities of data about wide varieties of still cameras for my research, I have had ample time to observe the profound disinterest most iconomechanophiles (87) have for amateur cinema equipment. This includes such wonderful devices as the Beaulieu "made in France," the Swiss Paillard-Bolex, and other magnificent entries from Germany and the USA, despite the confirmed presence of these cameras on the tables of collector shows and in the pages of specialized auction houses.

Moreover the regular appearance of articles in several magazines and books on the topic, and finally the scolding I have received in response to the first edition of this work lead me to present in this new chapter some of the marvels of this branch of Soviet industry. While it is true that some of the cameras that we will discover are heavily inspired by Western models, they are always carefully made, often with a finish quality better than what one finds among still cameras. So if you're a fan of ex-Soviet photo production, there is no way you will be able to resist the siren song of a NEVA-2 turret camera, the urchin's charms of a KAMA, or the purist technique of a KRASNOGORSK 16mm.

The cameras you will find in these pages are all 8mm, super 8, or 16mm amateur movie cameras, ranging from simple to sophisticated. The factories that made them - GOMZ-LOMO, KIEV or KMZ - also supplied 35 and 70mm professional material (Rossia ISCHS, BERESKA ISCHI, KONVAS 1KSR-2M, Kinor 35II, TEMP 1 SKL-M, RODINA KSX-M, etc.) But while the state enterprise GOMZ was already producing movie cameras and projectors in the thirties (p. 28) we would have to wait until the fifties to see the true beginning of amateur ciné camera production.

Still sporting the GOMZ nameplate (after all these years), the Tourist appears in 1957. This would have been the first Soviet amateur movie camera if there had not been the hoax. (see next page) Between 1956 and 1960 no fewer than six new models are issued by the four factories making movie cameras: SPORT, NEVA, LADA, from the Leningrad factory; ECRAN, the successor to the KAMA; QUARZ, forever proud of the missing "T" in its name, and the first contender from Moscow; and finally, the KIEV-16mm from ... well, Kiev, of course.

All these cameras are accompanied by projectors: Lyooch ("light"), Kama (which goes with the camera of the same name). And at that time everything is on display at the specialized sales outlet for the amateur cinematographic industry in Moscow: Kinoliubitel ("Movie Amateur.")

The SPORT (and/or SPORT-2) is exported to France (92-93) and Great Britain under the label "AMBASSADOR," an appropriate name since the camera marked the first real attempt to offer Russian amateur movie cameras in the West.

Then in 1965 Eastman Kodak introduced the new Super-8 format.

Compared to simple 8mm, Super-8 offered a much larger image - exposed (4.2 x 5.7mm vs. 3.5 x 4.8mm) and projected (4.0 x 5.3mm vs. 3.3 x 4.3mm, for an effective area of 21.5 vs. 15 mm<sup>2</sup>) greater standard film speed of 18 frames per second vs. 16 fps; and most important, much easier loading with a self-contained cassette.

But we would have to wait until 1969 for LOMO (the new name of GOMZ since 1965) to make the first Russian Super-8 camera, destined to become the first member of a dynasty - the AURORA. At the same time of course, the first Russian Super-8 cassette - the Svema (Type-S) - was launched.

KMZ followed in 1973 with the totally redesigned QUARZ-S1. It was introduced to the specialized press as "... having been designed

and developed by professionals, offering possibilities that advanced amateur movie-makers will appreciate, despite the limitations imposed by the Super-8 cassette itself." (sic) (121).

Granted, the QUARZ-S1 was a reflex camera, but still with a spring wind motor. As such, it was probably the only mechanical spring wind Super-8 ever created!

Starting in 1969 KMZ also offered the Krasnogorsk, a 16mm camera that would undergo superficial evolution over time, dressed in grey, black and white, then all black under the labels KRASNOGORSK-3 and KRASNOGORSK-4.



Assembly of TOURIST c.1957

Doc. Sov. Foto.

In Kiev, in the Ukraine, Zavod ARSENAL, concentrated on making only 16mm cameras from the beginning of the sixties. The first of these, the KIEV-16S-2 (1960) and KIEV-16S-3 closely followed the inspiration of the 2-lens turret models from Bell & Howell of the 1950's.

Around 1966, the KIEV-16U, bulky but innovative, offered a 3-lens off-axis turret. Somewhat curiously, these Ukrainian cameras were never distributed or sold outside the USSR through the official export channels of the various Soviet ministries ("Technointorg" or "Mash-PriborIntorg"), perhaps for reasons involving possible patent infringement.

In 1958 KOMZ (see p. 248) introduced the KAMA, a simple and inexpensive single-8 camera, sold for only 50 rubles. It was later replaced by the Ekran, flagship of the factory, then by the Ekran-3 (3-lens turret) and in 1967 the Ekran-4, seemingly the last of the line from KOMZ.

It was swept from the scene, as were so many others, by the arrival of the new standard format "made by KODAK." Super-8 was the dawning of a new era. In the USSR it introduced the reign of the AURORA from LOMO and the QUARTZ S-1 and S-2 from KMZ, cameras without much charm, but well finished and quite economical.

# Amateur 8mm Movie Cameras from GOMZ - LOMO

We might as well be honest about it from the start. Most Soviet movie cameras (like many still cameras) are more or less based on the inspiration of western models. In the first edition of this work, we voluntarily sidestepped this fact to avoid senselessly overloading the text; we do the same here. However, with respect to the "Turist," it seems that there has been some subterfuge at work. Indeed, this camera is nothing more or less than the *Admira* by J. Suchanek, made in Brno (Czechoslovakia) around 1948, just before the absorption of all independent optical firms by MEOPTA. (see Ariel ACR 192) It is clearly unfortunate that we must start this chapter by clarifying that the first entry is an obvious copy....

## **TURIST 1957 - 1962**

**MCG100**

mass market movie camera

Type: Double-8 Format: 3.2x4.3mm 7.5m (25') spools

Stamped body. Grip: strap on top of the camera

Powerful spring motor, good for 2.5m (8') per wind

5 speeds, set by a cursor: 10-16-24-48-64 frames/s. + single frame with cable release. Galilean finder, protected beneath the leather grip.

Prime lens: Triar 2.8/12.5mm in standard screwmount, just like the original.

Dimensions: 155x143x48mm Weight: 1300 g.

Price in the USSR c. 1960: 85 rubles. Delivered in a carrying case.

**Variant:**

Maybe an earlier version of the "Turist", identical to the original Czech *Admira*, with folding viewer.



*Documents Sovetskoe Foto -*

## **SPORT-1, SPORT-2, SPORT-3, SPORT-4 1960-1973**

Although not a copy, the *SPORT* incorporated design elements from the Austrian *Eumig C4*, which was also powered by a 4.5v battery.

### **SPORT 1960 - 1962**

**MCG110**

A simple camera with electric motor powered by a standard flashlight battery KBS-L-0.5 giving 10 films per battery.

Type: Double-8 Format: 3.5x4.8mm 7.5m (25') spools

Painted injection-molded body, removable straight. lightened grip.

4.5v electric motor. With standard KBS 0.5 batteries, camera can be used to temperatures as low as -10°C (14°F); with KBS 0.7, down to -20°C (-4°F).

Single speed: 16 fps (equivalent to 1/30s.) Galilean finder

Initially with 2.8/12.5mm lens; later the T-40.

Dimensions: 126x120x58mm Weight: 800 g

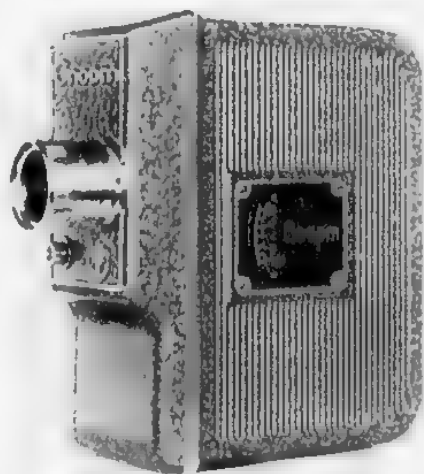
Price in USSR (c. 1960: 45 rubles) (123)

**Variants:**

MCG 110 - *SPORT* 1st model. (see illustration)

MCG 111 - *SPORT* with new body style, T-40 lens

MCG 115 - *Ambassador*: export model



**MCG 110 - SPORT 1st Model**

*Documents Sov. Foto*

### **SPORT-2 1962 - 1965 (+ AMBASSADOR) MCG120**

Identical to the *SPORT* MCG111.

Initially with T40 lens; later with T41 2.8 /10mm.

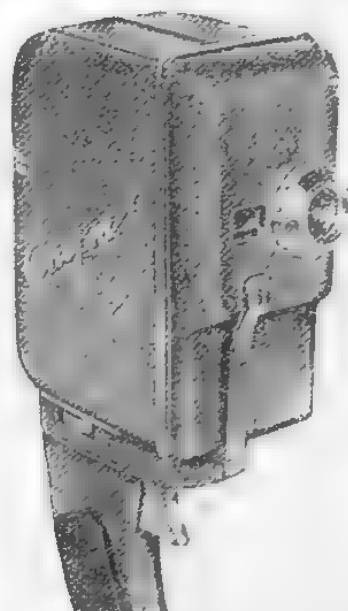
Dimensions: 123x112x58mm Weight: 610 g

Filters housed in the grip.

**Variants:**

MCG 125 - *Ambassador*: export model (as sold in France, Benelux and in Great Britain. The instruction book has the LOOMP logo.)

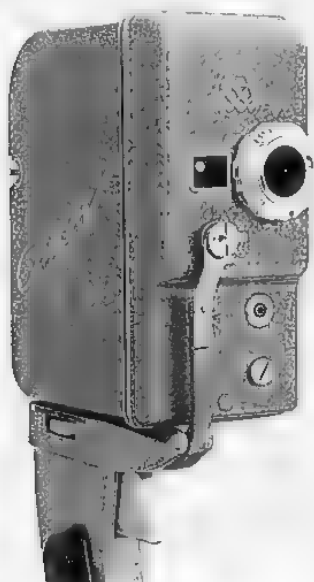
**Accessory:** Add-on selenium meter model EKS-2 (with LOOMP logo, so c. 1962).



**MCG 120 - SPORT-2**

*Documents Catalogue*

# Amateur 8mm Movie Cameras from GOMZ - LOMO



Document J.C. Lombard

## **SPORT-3 1966 - 1968**

Technical evolution of the Sport-2

Type: Double-8

Format: 3.5x4.8mm

Galilean finder

Painted injection molded body; removable pistol grip with storage space for filters. Single speed: 16 fps (equivalent to 1/40s. frame by frame at 1/20s. (with flash sync.). Initially with T40 lens; later with T41 2.8 /10mm fixed focus.

Dimensions: 123x112x58mm

Weight: 760 g

**Variants:**

- Hammertone paint finish, varying from blue-grey to beige.

MCG131 - GOMZ logo on front.

MCG132 - SPORT nameplate in Roman letters

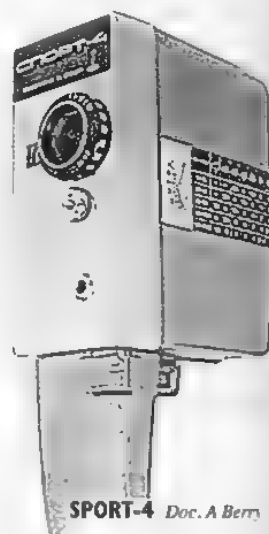
MCG133 - LOMO logo on front.

MCG135 - Ambassador. (export).

**Accessories:**

- Add-on selenium meter, model EKS-2 (LOOMP logo)

- underwater housing "Box LKB-2".



SPORT-4 Doc. A Berry

## **SPORT-4 1971 - 1973**

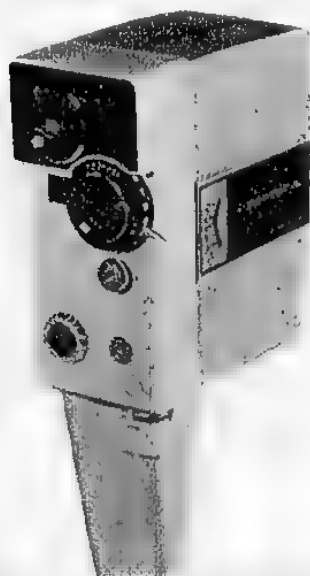
## **MCG140**

Redesigned version of the SPORT with "soap box" shape so popular in the late sixties. (Do you remember the SEM Veronic and Virginie in France (91), or the Admira 8G?)

Specifications identical to those of SPORT-3

T-51 2.8/10mm lens

removable pistol grip.



AURORA Document Science et Vie 1968

## **AURORA 1966 - 1974**

## **MCG150**

The SPORT-4 redesigned once again to incorporate a coupled meter visible in the finder, and semi-automatic operation.

T-51 2.8/10mm lens

**Variant:**

MCG155 - export model with Roman letter nameplate.



LANTAN

## **LANTAN 1969 - 1975**

## **MCG160**

First modern looking camera from LOMO, based on the NIZO look

Type: Double-8

Format: 3.5x4.8mm

7.5m (25') spools

Injection molded body. count-down counter.

electric motor; 4 speeds: 8-16 (=1/32s)-24-48 fps. + single frame (=1/16s)

reverse film travel possible on 48 fps setting

Reflex viewing. Manual camera but with internal CdS meter.

Granit-3 1.4/7.5-32mm zoom lens

possibility of sound sync with a recorder.

Battery: Rtsé53 (PX625)

## **JANUS**

c.1960

L210

Hybrid still/movie camera, half SMENA /half SPORT. (see p.75).

Single speed electric motor: 16 im/s.

T-40 2.8/10mm fixed focus lens

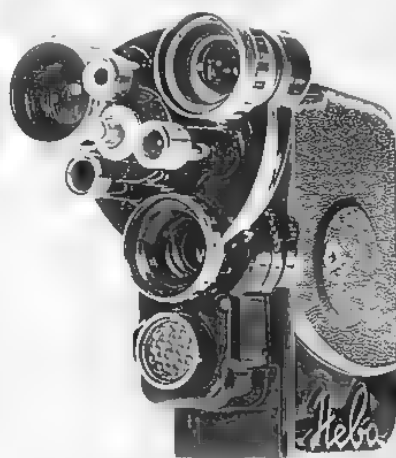
# Amateur 8mm Movie Cameras from GOMZ - LOMO

## NEVA

**1960 - 1963**

MCG170

Type: Double-8 Format: 3.2x4.3mm 7.5m (25') spools  
 Black lacquered injection molded body; removable pistol grip  
 mechanical spring motor  
 4 speeds: 8-16 (=1/32s)-24-48 fps. + single frame (switch "C" or "1")  
 Viewfinders giving correct framing for each focal length attached to the turret  
 lens change by rotation of the turret, possible only after pressing central clutch  
 release knob  
 Prime lens: CH1 1.9/12.5mm; later 13mm (focusing to 0.2m via a knurled wheel);  
 Optical converters 0.5x (giving 6.5mm [55°]) and 2x (giving 26mm [14°]) mount-  
 ed on the turret.  
 The tele-converter has its own focusing helical, with corresponding DoF scale.  
 Semi-automatic built-in selenium meter, coupled to the diaphragm of the lens.  
 Settings are made on top of the camera: 11 - 90 GOST (12 - 100 ASA)  
 Dimensions: 160x150x100mm Weight: 1450 g  
 Price in USSR c. 1960 : 200 rubles

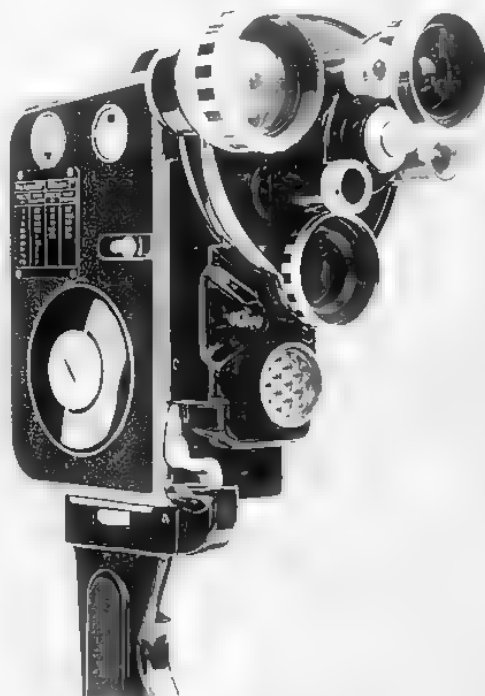


## NEVA -2

**1963 - 1968**

MCG180

Development of the Neva.  
 Similar, but with different position of speed selector switch. 4 speeds:  
 8-16 (=1/32s)-24-48 fps. + single frame (switch "C" or "1")  
 Rewind mechanism  
 Viewfinders on the turret, with parallax correction for close focusing  
 (1m.)  
 Lens: CH1 1.9/13 plus converters, identical to the Neva.  
 Film plane index  
 Improved film chamber opening system (a disaster on the first  
 model.)  
 Variant:  
 - perhaps a NEVA finished in bordeaux red (?).



## LADA

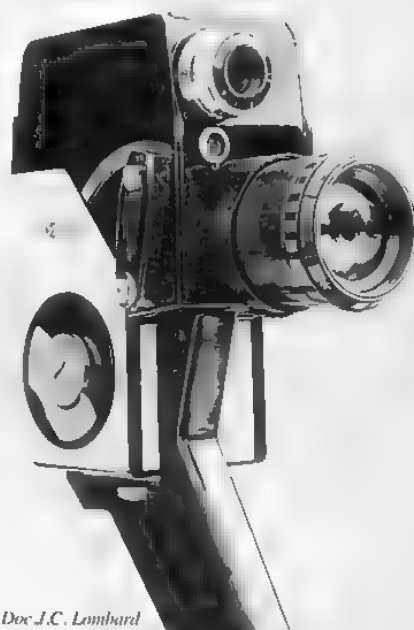
**1963 - 1975**

MCG190

Type: Double-8 Format: 3.2x4.3mm 7.5m (25') spools  
 Injection molded aluminum body. Film counter in meters and feet.  
 Mechanical spring motor. 4 speeds: 8-16 (=1/32s)-24-48 fps. + single frame.  
 Operating speed and film speed setting on the same ring.  
 Film rewind up to 50 frames, using included rewind crank.  
 Reflex viewing  
 prime lens: PF-2 1.7/9~37mm. Zooming by a cursor on the body, operating  
 internal zooming mechanism.  
 Auto diaphragm with manual override at all speeds, with indicator in the finder.  
 CdS meter 11 - 90 GOST/12 - 21 DIN. 3 Ttsé53 batteries.  
 Film chamber opened by ring surrounding lens mount.  
 Finished in grey leatheret and black paint.  
 Dimensions: 155x150x72mm Weight: 1500 g  
 Price in USSR c. 1960: 85 rubles

### Variant:

MCG191 - LADA, grey leatheret and grey lacquer  
 MCG192 - LADA, black leatheret and black lacquer  
 MCG195 - LADA-2. c. 1974 - Announced but never seen.



*Document J.C. Lombard*

*Doc J.C. Lombard*

# Amateur 8mm Movie Cameras from GOMZ - LOMO

## **AURORA "super"**

**1969 - 1976**

**MCL200**

*With the Super, LOMO makes a new camera from an old one. Replacing the AURORA and the SPORT-4, the Super is soon replaced in turn by the AURORA 10 and 12, with their more contemporary styling.*

Identical to the Aurora or Sport-4 but using the new Super-8 film.

Format: 4.2x5.7mm 15m/50' Cassettes

Electric motor. single speed: 18 fps.

prime lens: T-51M 2.8/10mm

## **AURORA-10**

**1971 - 1975**

**MCL210**

Type: Super-8 Format: 4.2x5.7mm 15m/50' Cassettes

Electric motor using 4 Kvant A316 or Mallory batteries

Single speed: 18 fps.

Prime lens: LOMO T-54 2.8/16mm

Color correction filter located behind the lens.

Film counter visible in finder

*Variant:*

## **AURORA-12**

**1971 - 1975**

**MCL220**

Identical to the Aurora 10, but with meter settings 32 - 45 GOST.

automatic diaphragm, with scale visible in finder

## **AURORA-14**

**1972 - 1975**

**MCL240**

## **LOMO-214**

**c. 1976**

**MCL244**

## **AURORA-214**

**c. 1978**

**MCL248**

*Basic model of the new series of reflex cameras, comprising the Aurora 14, 16 and 18. They were replaced in 1976 by more developed versions, the LOMO 214, 216 and 218. In 1978 the name changed again to Aurora 214, 216 and 218 in 1978, and then reverted to LOMO 214 and 216 for the export models of the Aurora 215 and 217 later in 1978. Have you got all that?*

Type: Reflex Super-8 Format: 4.2x5.7mm 15m/50' Cassettes

Count-down counter in meters used.

Electric motor using 4 Kvant A316 or Mallory batteries

Single speed: 18 fps.

0.5x reflex viewing, with diaphragm scale visible in finder

Diopter correction

Prime lens: AGAT 14 zoom 2.8/9~27mm.

*Variants:*

## **AURORA-16**

**1974 - 1975**

**MCL260**

## **LOMO-216**

**c. 1976**

**MCL264**

## **AURORA-216**

**c. 1978**

**MCL268**

## **LOMO-216**

**c. 1983**

**MCL265**

Identical to the Aurora 14, but simplified.

Single focal length lens T55 2.4/12mm with symbol scale focusing.

## **AURORA-18**

**1974 - 1975**

**MCL280**

## **LOMO-218**

**c. 1976**

**MCL284**

## **AURORA-218**

**c. 1978**

**MCL288**

## **LOMO-218**

**c. 1983**

**MCL285**

Identical to the Aurora 16, but with automatic diaphragm setting.

CdS meter 22 - 250 GOST.

# Amateur 8mm Movie Cameras from GOMZ - LOMO

A modification, mainly to the viewfinder, of the .... Aurora 214-216 and 218.

## **AURORA-219**

c. 1978 - 1983

**MCL290**

Type: Super-8

Format: 4.2x5.7mm

15m/50' Cassettes

Plastic body with removable grip.

Electric motor running on 4 Kvant A316 or Mallory batteries.

Single speed: 18 fps; prime lens: LOMO T55 2.4/12mm fixed focus.

Automatic diaphragm setting with manual override, settings visible in finder.

CdS meter; range: 22 - 250 GOST (Some calibrated in DIN.)

Dimensions: 152x120x65 Weight: 700 g

Variants:

## **AURORA-215**

c. 1978

**MCL250**

## **LOMO-214 (export)**

c. 1983

**MCL254**

## **LOMO-215 (export)**

**MCL255**

Identical to the 219 but with AGAT-14 zoom lens 2.8/9-27mm.

## **AURORA 217**

c. 1978

**MCL270**

## **LOMO 216 (export)**

c. 1983

**MCL274**

## **LOMO-217 (export)**

**MCL275**

Identical to the 219, with T55 2.4/12mm lens and manual settings by symbol.



**MCL290 - LOMO-219**

Document J.C. Lombard

## **AURORA-200**

c. 1978/1979

**MCL300**

Type: Super-8 Format: 4.2x5.7mm 15m/50' Cassettes

Electric motor running on 4 Kvant A316 or Mallory batteries.

Speeds: 6-12-18-24-36-54-72 fps; single frame;

Reflex viewing, with diaphragm setting and frame counter visible in finder.

Prime lens: Variogör 2B 1.8/ 6.5-65mm zoom with motorized or manual zooming.

Automatic TTL diaphragm setting.

CdS meter; range: 16 - 350 GOST

Weight: 2200 g

Variant:

## **AURORA-220**

1979

**MCL320**

Identical to the 200, with integrated special features for automatic slow motion, lap dissolves, and fade in/out; remote control.



**MCL300 and MCL320 - LOMO-200 and 220**

Document LOMO

## **AURORA-224**

c. 1985 - 1992...

**MCL330**

Type: Super-8 Format: 4.2x5.7mm

Electric motor running on 3 Kvant A316 or Mallory batteries.

Single speed: 18 fps;

Prime lens: GRANIT-12 2.8/9-27mm zoom.

Automatic diaphragm setting; auto film speed setting.

CdS meter; range: 22 - 180 GOST

Dimensions: 182x91x55 Weight: 800 g

Sales price in USSR in 1986: 200 rubles



**AURORA-224**

Document LOMO

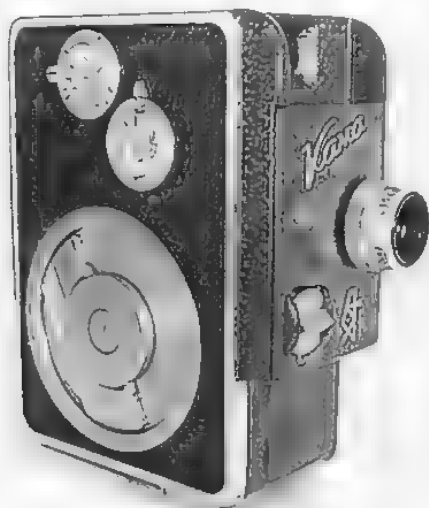


NAME - LOMO												
	Mechanical motor			Electric motor								
	Fixed lens	2 or 3 lens turret	REFLEX zoom CdS meter	Fixed lens	F. lens + cell	REFLEX Zoom + Cell	Fixed lens	F. lens + cell	REFLEX Fixed lens	REFLEX F. lens CdS meter	REFLEX Zoom CdS meter	REFLEX Zoom Automatic
1950												
1951												
1952												
1953												
1954												
1955												
1956												
1957												
1958	TURIST											
1959												
1960												
1961		NEVA		SPORT								
1962				SPORT			1962 - L . O . O . M . P. (see p.49)					
1963				-2								
1964				SPORT								
1965				-3			1 January 1965 - L . O . M . O.					
1966		NEVA 2		SPORT								
1967				-4								
1968			LADA		AURORA							
1969								AURORA "super"				
1970												
1971				SPORT-4								
1972					LANTAN							
1973								AURORA 10				
1974									AURORA 12			
1975			LADA-2						A. 16	A. 18		
1976									A.216	A.218		
1977									L.216	L.218		
1978												
1979									A. 217	A. 219	A. 215	A.200
1980												A.220
1981									LOMO 216	LOMO 219	LOMO 214	
1982									217		215	
1983												
1984									L.216	L.218		
1985												AURORA 224
1986												
1987												
1988												
1989												
1990												
1991												
1992												

	28 mm					16 mm			16 mm	
	Mechanical motor					Electric motor			Mechanical motor	
	Fixed lens	Semi-automatic F. lens	F. lens + cell	Zoom + cell	REFLEX Zoom Semi-auto	REFLEX Zoom Semi-auto	REFLEX Zoom Auto	REFLEX Zoom Auto	REFLEX Zoom Automatic	
1950										
1951										
1952										
1953										
1954										
1955										
1956										
1957										
1958										
1959										
1960										
1961	QUARZ									
1962										
1963										
1964		QUARZ-2		QUARZ-3						
1965				QUARZ-ZOOM						
1966		QUARZ-2M			QUARZ-5				KRASNOG.	K.2
1967										
1968										
1969			QUARZ-M							
1970										
1971							QUARZ 1x8S1			
1972						QUARZ-2x8S-3			KRASNOG.-3	
1973										
1974						QUARZ D8S-3	QUARZ 1x8S2			
1975										
1976										
1977										
1978										
1979										
1980										
1981										
1982										
1983										
1984										
1985										
1986								QUARZ 8 XL		
1987										
1988										
1989										
1990										
1991										
1992										KRASNOG.-4

# Amateur 8mm Movie Cameras from KAZAN

The "KAMA-EKRAN" series is produced by the optico-mechanical factory in KAZAN, east of Moscow. The Kama is a 2000km/1200mi. long river in western Russia flowing through Kazan on its way from its headwaters in the Urals to its junction with the Volga. Following the KAMA, rustic but extremely well finished, slavic design finds its apogee in the compact and lovely (in my eyes, at least) EKRAN. The EKRAN is unique among its Soviet competitors in its use of the *single-8* format, and for the fact that it was never exported.



**MCKz100 - KAMA** - Document A. Berry

## **KAMA**

**1958 - 1962**

**MCKz100**

Type: single-8mm      Format: 3.5x4.8mm      10m/30' spools  
 Injection molded body      Removable grip et wrist strap  
 Mechanical spring wind motor  
 2 speeds: 16 (1/50s.)-32 fps + single frame  
 Galilean viewfinder  
 Prime lens: 2.8/12.5mm Triplet fixed focus.  
 Dimensions: 105x40x25mm.  
 Price in the USSR c. 1960 - 50 rubles.

*Accessories* : delivered with filters and a close-up lens giving 0.3m focusing

*Variants*:

MCKz100 - Hammertone grey paint, KAMA nameplate under lens  
 MCKz102 - Hammertone green paint.



**MCKz115 - KAMA**

## **EKRAN**

**1961 - 1970**

**MCKz115**

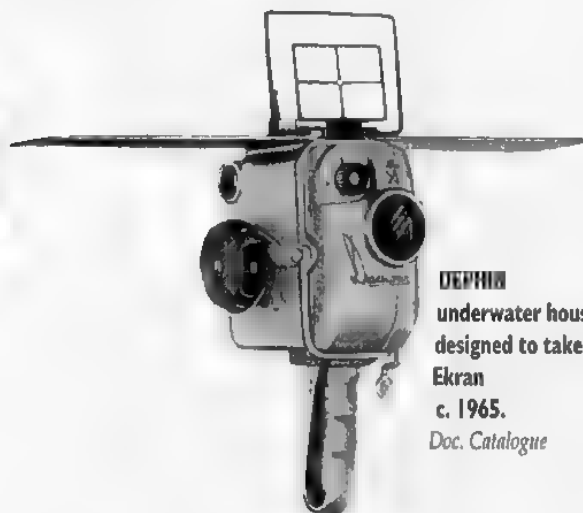
Type: single-8mm      Format: 3.5x4.8mm  
 10m in special light-tight cassette  
 Injection molded body      Removable grip and wrist strap  
 Mechanical spring wind motor  
 4 speeds: 8-16 (1/32s.)-24-48 fps + single frame  
 rewind of 100 frames.  
 Galilean finder.  
 Prime lens: KAMA 2.8/12.5mm focusing to 1.2m.  
 Dimensions: 105x95x43mm Weight: 600 g  
 Delivered with optical complements 0.5x wide angle and 2x telephoto  
 Price in USSR c1965 - 200 rubles.

*Variants*:

MCKz110 - EKRAN, Hammertone grey paint.  
 MCKz112 - EKRAN, Hammertone green paint.  
 MCKz114 - EKRAN, Hammertone blue paint.  
 MCKz115 - EKRAN, black paint (c1965).  
 MCKz116 - EKRAN, grey paint.

*Accessories*:

- Viewfinder attachment giving the fields of view of the optical complements. Attached to the lenses, this is marked with the "Ekran" graphic. (see p. 276)
- Sunshade with special effects masks
- **DELPHIN** underwater housing c. 1965: injection molded, designed for use down to -40m/135'.  
 185x105x250 mm      Weight: 1450 g.



**DELPHIN**  
 underwater housing  
 designed to take the  
 Ekran  
 c. 1965.  
 Doc. Catalogue

# Amateur 8mm Movie Cameras from KAZAN

## **EKRAN -3 1965 - 1969**

**MCKz130**

Identical to the EKRAN but with a 3-lens turret.

The EKRAN-3 is not completely new, but not just a facelift either: it consists of an EKRAN with, instead of the separate optical complements and finders, a rotating turret with everything attached. the turret rotates on a central shaft screwed to the front of the camera starting (apparently) in 1965. To change focal lengths, the user simply pulls the turret away from the body on its axis, rotates it, and replaces it. The optical complements change the effective focal length, or, in the case of the standard 12.5mm lens, serve as a sunshade.

### **3 "lens" Turret**

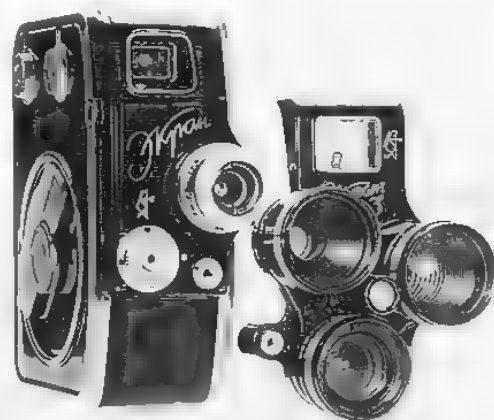
Prime lens: 2.8/12.5mm Triplet fixed focus, with optical complements of 0.5x and 2x, giving the equivalent of 6.5mm (55°) or 26mm (14°).

Simple floating frame viewfinder with indicator of the focal length in use.

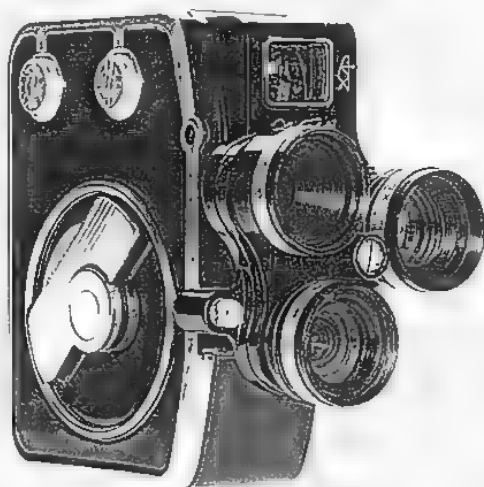
Possibility of rewind of 100 frames (according to the instruction manual.) Built-in possibility of making contact copies. The virgin film is loaded normally; the original to be copied is inserted through two slits in the body and the pair of films is drawn through the camera in a contact "sandwich" exposed by light through the camera's lens.

Dimensions: 120x105x59mm

Weight: 720 g



**EKRAN + optical complement assembly = EKRAN 3**



## **EKRAN - 4 1967 - 1975**

**MCKz140**

Second generation. Redesigned reflex camera, restyled with a more "international" look, using double 8mm .

Type: double-8mm      Format: 3.5x4.8mm      7.5/25' spools

Injection molded body      Removable ergonomic grip

Mechanical spring wind motor

3 speeds: 16 (1/32s.)-24-48 fps + single frame

Automatic (at 16 fps) or semi-automatic exposure.

Diaphragm setting visible in reflex finder.

meter settings from 11 - 90 GOST

Internal filter wheel.

**Turret with 3 "focal lengths."**

Prime lens: TRIPLET 1.8/12.4 mm lens with optical complements on a turret: 0.35x and 1.5x, giving (a record-breaking) equivalent of 4.4mm and 19mm.

Dimensions: 130x113x60mm

Weight: 940g.

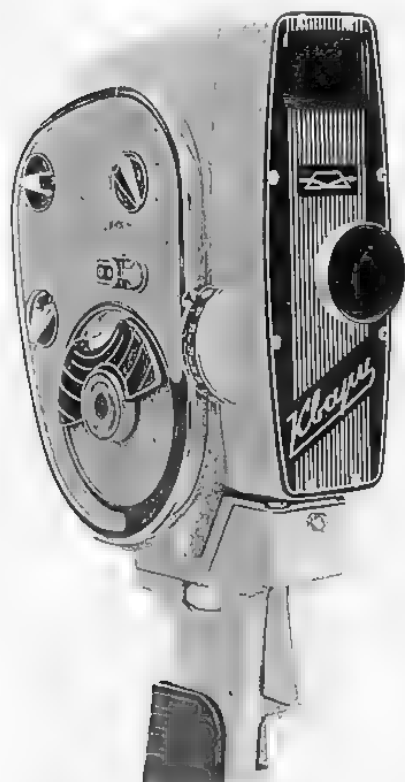
**Variant:**

MCKz142 - Ekran-4 with 4 speeds, 12-16-24 and 48 fps. (c. 1970)



**MCKz140 - KAMA - Document J.C. Lombard**

# Amateur 8mm Movie Cameras from KMZ



Photos of Quartz : J.C. Lombard



## QUARZ

1960 - 1966

MCK100

Type: double-8mm

Format: 3.6x4.8mm

7.5m/25' spools

Injection molded body, dark grey hammertone paint finish

Galilean finder.

Removable grip containing 2 filters

mechanical spring wind motor (2m per wind)

3 speeds: 8-16 (1/32s.)-32 fps + single frame.

crank for rewind.

Original prime lenses: YOU-24 (~~IO~~-24, Jupiter-24) 1.9/12.5mm fixed focus, or Neva-1 1.9/12mm.

Diaphragm settings to f: 16 on wind side of body

Dimensions: 145x120x62mm

Weight: 1000 g

Accessory: "Neptune" watertight body

Variants:

MCK100 - QUARZ: in Cyrillic, with various styles and shapes of control buttons (flat or raised), and various colors- dark grey or light blue-grey hammertone.

MCK101 - QUARZ: Roman letter "Quarz" logo for export. Various styles of control buttons and spring wind key.

## QUARZ- 2

1963 - 1968

MCK120

Identical to the Quarz but with meter settings from 11 - 90 GOST.

Semi-automatic exposure (at 16 fps) with selector on camera front and indicator in the Galilean finder

Format: 3.55x4.9mm

Diaphragm settings to f: 16 with selector on control side of camera.

Dimensions: 145x120x62mm

Weight: 1200 g

## QUARZ- 3

c.1963 - 1968

MCK130

Identical to the Quarz-2 but with new body front and variable focal length viewfinder coupled to the lens.

Prime lens: METEOR-2 2.4 / 9 ~36mm zoom.

4 speeds: 8- 16- 24- 48 fps.

Diaphragm settings by cursor on wind side of body

light blue-grey paint finish

Variant:

MCK135 - QUARZ-ZOOM (see next page)

## QUARZ M

1965 - 1973

MCK140

Type: double-8mm

Format: 3.5x4.8mm

7.5m/25' spools

Injection molded body, dark grey hammertone paint finish.

Galilean finder.

Removable grip containing two filters.

mechanical spring wind motor (2m per wind)

4 speeds: 12-16 (1/32s.)-24-48 fps + single frame.

prime lens: YOU-24 (~~IO~~-24, Jupiter-24)1.9 / 12.5mm fixed focus

Diaphragm settings to f: 16 with selector on control side of camera.

Meter settings from 11 - 90 GOST (12 - 100 ASA) with selector on camera front and indicator in optical finder

Dimensions: 145x120x62mm

Weight: 1000 g

Variants:

MCK141- QUARZ M: version export model with Quarz (still without "T") in Roman letters.

# Amateur 8mm Movie Cameras from KMZ

## QUARZ-2M

1966 - 1973

MCK125

Identical to the Quartz-2, with 6 speeds: 8-12-16-24-32-48 im/s+im/im.

Prime lenses: **IO-24M**, Jupiter-24-1 or 24-M 2.4 / 12.5mm

Delivered with optical complements for 0.5x and 2x.

*Variants:*

MCK126 - export model with Quarz in Roman letters.

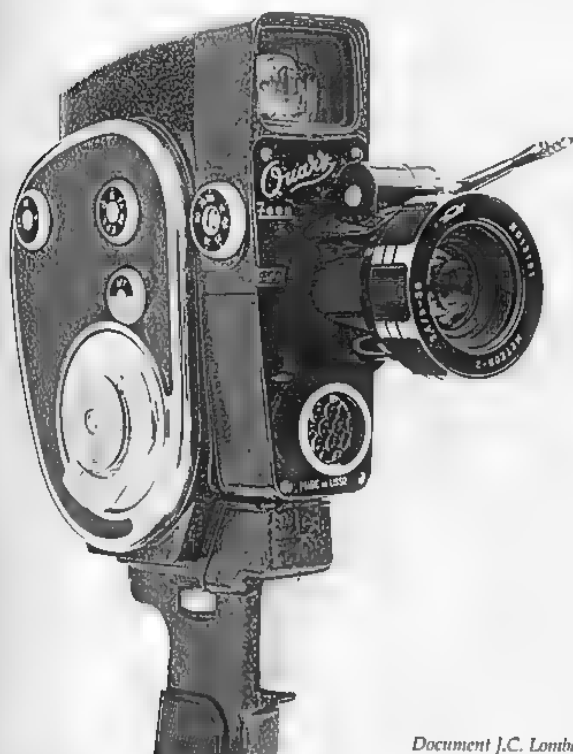
MCK127 - 5-speed version: 12-16-24-32-48 fps.

## QUARTZ-2x8S-1M (2xSuper 8-1M) 1968

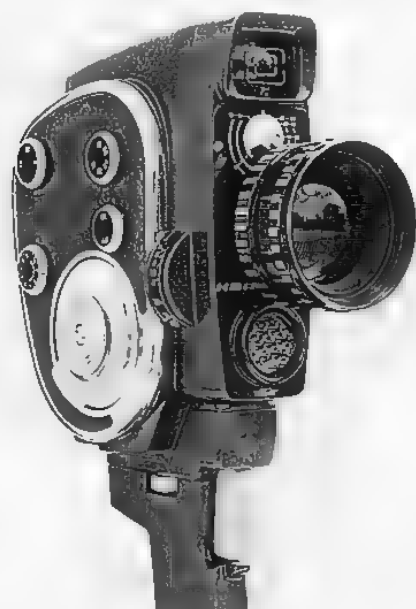
MCK160

*This is the first Russian Super-8 movie camera.*

Identical to the Quartz 2M but with JUPITER-24-1 1.9/12.5mm lens corresponding to the new Super-8 format.



Quarz 2M  
with 2x optical  
complement.



## QUARTZ-DS8-M (super-8) c.1975

MCK165

Identical to the Quartz-2x8S-1M.

## QUARZ - ZOOM

c.1965 - c.1968

MCK135

Export model identical to the QUARZ-3 but with button selector of its FIVE speeds:

12-16 (1/32s.)-24-32-48 fps + single frame

Prime lens: METEOR-2- 2.4/9~36mm zoom, seen in various finishes (all black, black and chrome).

*Document J.C. Lombard*

## QUARZ - 5 1967 - 1973

REFLEX

MCK150

New technology, new style. Reflex body now sports a more angular, more modern look, and is painted in grey-green. *This is the era of the ZENIT-D in the photo department.*

Type: Double-8

Format: 3.5x4.8mm

Mechanical spring wind motor (2m per wind)

5 speeds: 12-16 (1/32s.)-24-32-48 fps + single frame

Reflex viewer. Semi-automatic exposure with indicator.

Prime lens: METEOR-2-3 2.4/9~36mm zoom

built-in rewind crank

Dimensions: 165x148x60mm

Weight: 1400 g

*Variants:*

MCK150 - QUARTZ-5, in Cyrillic characters.

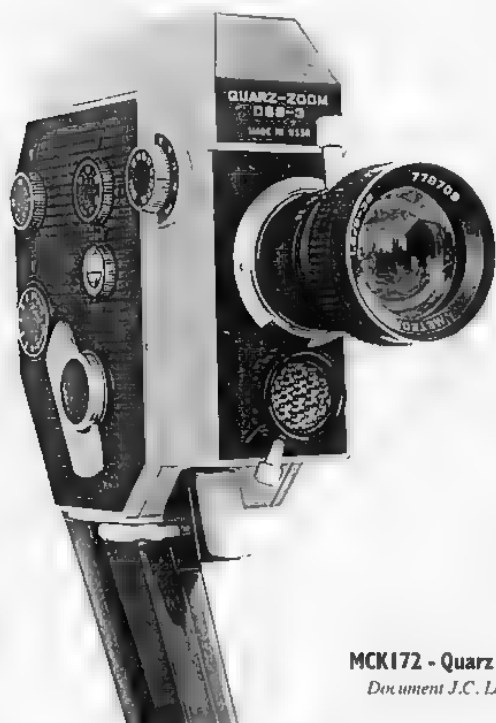
MCK151 - QUARZ-5, in Roman letters, with various QUARZ-5 styles.

MCK152 - QUARZ-5, with 6 speeds (8-12-16-24-32-48 fps + single-frame).



*Document J.C. Lombard*

# Amateur 8mm Movie Cameras from KMZ



**MCK172 - Quarz D8S-3**  
*Document J.C. Lombard*

**QUARZ 2x8S-3 or super-8 QUARZ D8S-3.**  
c.1971 (or 1973) ... 1980.

**MCK172**

Identical to the Quarz-5, still with spring wind mechanical motor, but adopting the new standard Super-8 format.

Speeds: 12- 18- 24- 36 fps + single frame

Semi-automatic at all speeds.

Meter settings: 12 - 23 DIN.

Reflex viewing with microprism focusing screen.

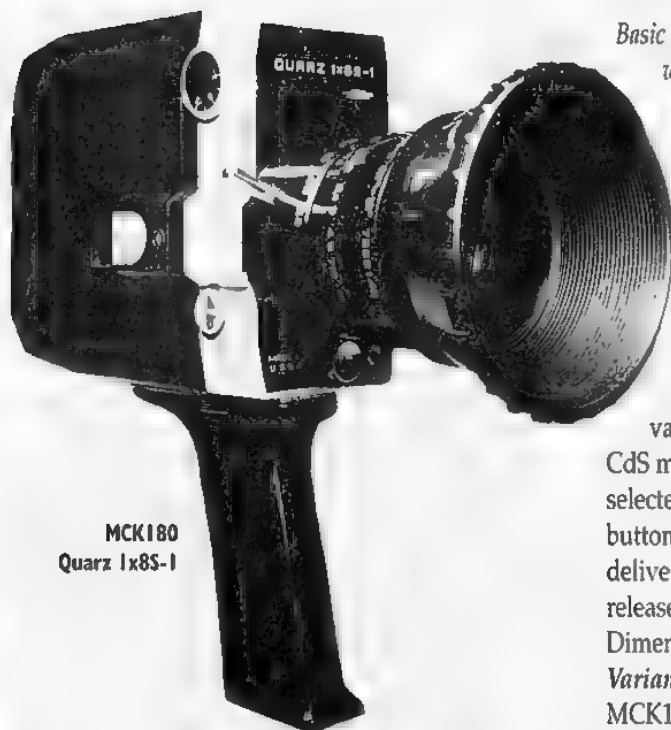
Prime lens: METEOR-8M 1.8 /9~38mm zoom.

weight: 1600 g.

**Variants:**

MCK170 - Quarz-Zoom DS8-3 in Cyrillic characters.

MCK172 - Quarz-Zoom DS8-3 in Roman letters and several styles of nameplate.



**MCK180**  
**Quarz 1x8S-1**

**QUARZ 1x8 S**

**c.1970**

**MCK180**

**QUARZ 1x8 S1**

**c.1970 - 1974**

**MCK181**

*Basic model of the new series; still using a spring wind motor, now a world-wide exclusive.*

Type: Super-8      Format: 4.2x5.7mm      15m/50'

Svema (or Kodak) Cassette

TTL auto exposure reflex body

Removable grip

**Mechanical spring wind motor** (2m per wind)

5 speeds: 8-12-18-24-32 fps + single frame

Prime lens: AGAT-6A 1.8/9~ 23mm "zoom". In reality, a Mars-1 fixed lens with the Pandora-6 complement giving a variable focal length effect. Minimum focus: 1.25m.

CdS meter auto exposure with manual override.

selected diaphragm and battery condition visible in finder.

button for backlight compensation; daylight balance filter built in.

delivered with carrying case, filters, close-up lenses and cable release.

Dimensions: 200x105x70mm

Weight: 1000 g

**Variants:**

MCK180 - light grey body, black front (early production.)

MCK181 - "Quarz" in Cyrillic characters.

MCK182 - "Quarz" in Roman letters.

MCK183 - black and aluminum body, black front.



# Amateur 8mm Movie Cameras from KMZ

## QUARZ -1x 8S-2

1973 ... 1992

MCK191

Type: Super-8

Format: 4.2x5.7mm

15m/50' Svema (or Kodak) Cassette

TTL auto exposure reflex body      Removable grip

Mechanical spring wind motor (2m per wind)

5 speeds: 9-12-18-24-32 fps + single frame

Prime lens: METEOR 8M-1 1.8 /9-38mm zoom.

CdS meter auto exposure with manual override.

selected diaphragm and battery condition visible in finder.

button for backlight compensation; daylight balance filter built in.

Delivered with carrying case, filters, close-up lenses and cable release.

Dimensions: 200x105x70mm

Weight: 1100 g

**Variants:**

MCK190 - black body, white front (c1973)

MCK191 - black and aluminum body, black face

MCK192 - ditto, with Roman letter nameplate.

MCK198 - non-functional Quarz camera, concealing a (totally functional) F-21 (see p.195).



## QUARZ -8XL

c1985 ... 1992

MCK200

Type: Super-8

Format: 4.2x5.7mm

15m/50' Svema (or Kodak) Cassette

TTL reflex body . 15 - 180 GOST (16 - 200 ASA)

9v electric motor; 6 A316 or R6 batteries

3 speeds: 9- 18 - 24 fps + single frame

Prime lens: KARAT 1.2/8-40mm zoom

Auto or manual exposure with selected diaphragm and battery condition visible in finder.

Delivered with carrying case, filters, close-up lenses and cable release.

Dimensions: 227x81x22mm

Weight: 1250 g

Sale price in USSR c. 1986: 365 rubles.



Document KMZ



## PK-2

Watertight housing for QUARZ.

Designed for use down to -50m/-165'.

Dimensions: 585x250x286mm

Weight: 1820 g.

# Semi professional 16mm Movie Cameras from KMZ



**Krasnogorsk** Document KMZ

## **KRASNOGORSK**

**1965 - 1974**

**MCK300**

Type: 16mm Format: 7.2x9.6mm 30m/100' cartridge  
TTL reflex camera Removable grip  
mechanical spring wind motor (5m per wind)  
6 speeds: 8-12-16 (1/40s.) -24-32-48fps + single frame.  
Semi-auto exposure with CdS meter from 16 - 130 GOST, with override.  
Prime lens: GK-20/1 or VEGA-7 2/20 mm  
Accessory interchangeable lenses: OKS1-10-1 2.8/10mm,  
MIR 11M 2/12.5mm and OKS-1 or VEGA-9 2/50mm  
Bayonet mount  
Dimensions: 240x165x85mm Weight: 3000 g  
Variants:  
MCK300 - light grey body, black front (c. 1965)  
MCK301 - black body, white front

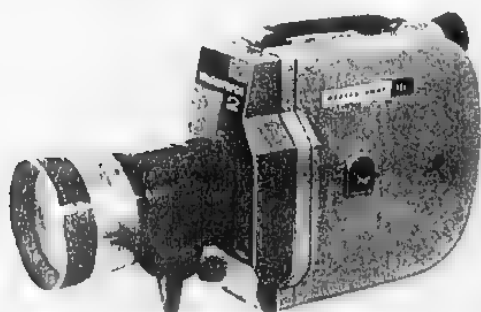
## **KRASNOGORSK-2**

**c. 1966**

**MCK320**

### **ou KRASNOGORSK SEMI-AUTOMATIK-16**

Identical to the Krasnogorsk but delivered with METEOR-5-1 1.9/17-69mm zoom . Accessory interchangeable lenses: MIR 11 2/12.5mm, VEGA-9 2/50mm and VEGA-7 2/20mm.  
5 speeds: 8-12-16 (1/40s.) -24- 32fps + single frame  
Dimensions: 332x170x104mm Weight: 3200 g  
Variants:  
various styles of camera front.



**Krasnogorsk -2**

## **KRASNOGORSK-3**

**c. 1971 - 1989**

**MCK332**

Type: 16mm Format: 7.2x9.6mm 30m/100' cartridge  
TTL reflex camera (16 - 130 GOST) Removable grip  
mechanical spring wind motor (2m per wind)  
6 speeds: 8-12-16 (1/40s.) -24-32-48fps + single frame.  
Semi-auto exposure with CdS meter , with override.  
Prime lens: Zoom METEOR-5-1 or 5-2 1.9/17 ~ 69mm  
Accessory interchangeable lenses: OKS 1-10 2.8/10mm, MIR 11M 2/12,5mm and OKS-1 2/50 mm or VEGA-9 2/50mm.  
Dimensions: 326x194x104mm Weight: 3600 g  
Variants, with various styles of camera front.



**Krasnogorsk 3 and 4.**  
Document KMZ.



MCK330 - Black body, white face  
MCK331 - Black body, white face with ZENIT logo.  
MCK332 - Beige and black leather body, black face.  
MCK333 - All black; the most common configuration.

# Semi professional 16mm Movie Cameras from KMZ

## **KRASNOGORSK-4**

Type: 16mm  
TTL reflex camera  
mechanical spring wind motor (5m per wind)  
6 speeds: 8-12-16 (1/40s.) -24-32-48fps + single frame.  
Semi-auto exposure with CdS meter from 8 - 250 GOST, with override.

Prime lens: 16 OPF-1-2K 2.4/12~120mm zoom

Accessory interchangeable lenses: OKS1-10 2.8/10mm, MIR-11M 2/12.5mm and OKS-1 or VEGA-9 2/50mm

Bayonet mount

Dimensions: 370x194x104mm

## **MCK340**

30m/100' spools.

### **Variants:**

MCK340 - black body, white front

MCK341 - beige paint and black leather body, black front

*In France there were several attempts to revive the 9.5mm "Pathé" format using the Krasnogorsk cameras as a base:*

## **MCK350 - NED2000 "Nine and a half" c.1994**

Identical to the KRASNOGORSK-4 but using the 9.5mm format.

Modification performed by the French company "MS Repairs, Paris, for the French society "Neuf & Demi."

## **MCK352 - NED2001 Quartz "Nine and a half" c.1994**

Identical to the NED2001 but with 12v electric motor quartz sound synch. Speeds: 24 or 25 fps.

Apparently only a few units were produced

**MCK355 - VOLODIAPH 9,5 c.1999.** A new French attempt to create a 9.5mm camera based on a 16mm Krasnogorsk.

Proposed with a MEOPTA projector, which had also been modified, and Fuji Velvia film.

# Three beautiful 35mm professional Movie Cameras



## **KSR**

35mm reflex camera c. 1960.

Electric or mechanical speeds from 8 - 32 fps.

60m/200' magazine

3-lens turret plus anamorphic lens complement.

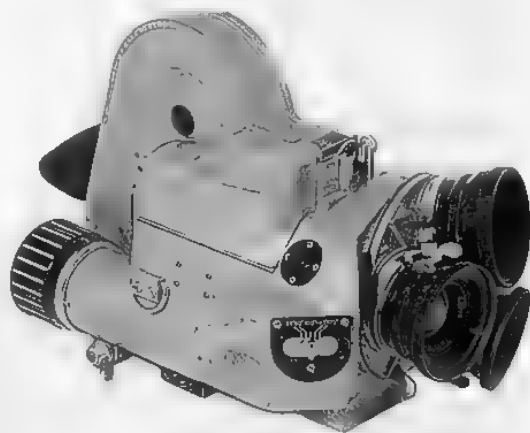
weight: 5.9kg.

Doc. Paris Exposition 1960.

As we can see in these pages Soviet industry has offered us several really superb amateur level cameras. The professional level has not been neglected, either. Sikorski once said that "... a plane that is well thought out will fly. But if it is beautiful, it will fly even better."

This is demonstrated by most industrial products, but it is particularly true of photographic and

cinematographic equipment.



35mm reflex camera of unknown origin. c. 1960.  
3-lens oblique turret, similar to the Kiev 19U  
Doc. Milos P. Mladek.



## **KSR-2M KONVAS Automat**

35mm reflex camera with electric motor. c. 1975.

speeds: 8,16,24 et 32 fps.

Taking the range of KMZ lenses.

Doc. Technointorg

# Semi professional 16mm Movie Cameras from Arsenal



**MCA122 - KIEV 16S-2** Document J.C Lombard

The KIEV 16mm family use single or double perforated 16mm film and are aimed at the "advanced" amateur, training committees, and professional markets which share a need for a lightweight movie camera. Initially, it is a straightforward copy of the Bell & Howell 200 Autoload but the Ukrainian engineers quickly take charge and produce more original camera designs.

**KIEV 16S** (production not confirmed)

**MCA100**

Identical to the KIEV 16S-2 with a few mechanical improvements. Only works with the cassette in place.

**KIEV 16S -2 (КНБ 16 С-2) c.1960 - 1966**

**MCA122**

Type: 16mm Format: 7.2x9.6mm 15m/50' cassette  
aluminum alloy body. Removable grip

Mechanical spring wind motor (4.5m per wind)

5 speeds: 16 (1/43s.)-24-32-48-64 fps + single frame

Part of the drive mechanism is located in the (Kodak-type) cassette. Two-lens turret (using optical complements) and corresponding finders.

Prime lenses: RO-51 2.8/20mm and Industar-50 3.5/50mm.

Dimensions: 215x130x65mm

Weight: 1700 g

Sales price in USSR c. 1962: 170 rubles

Variants :

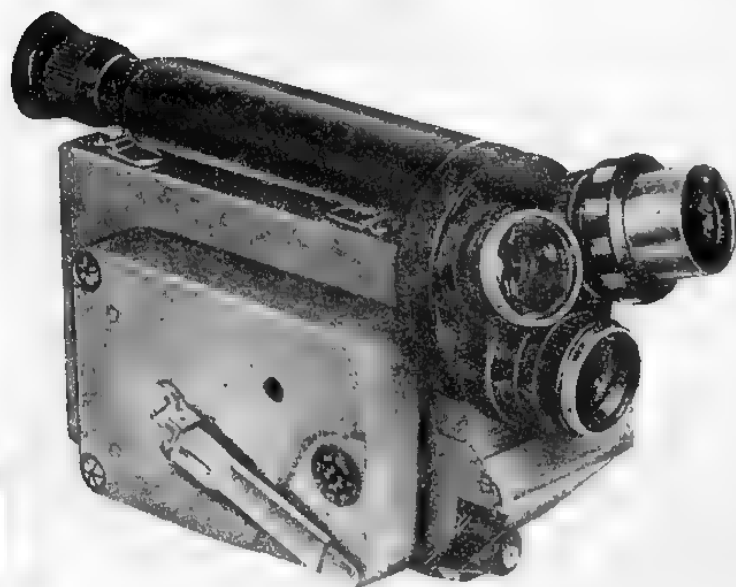
MCA120 - chrome lenses.

MCA122 - black lacquer lenses.

**KIEV 16S -3 (КНБ 16 С-3) c.1966 - 1971**

**MCA130**

Identical to the KIEV 16S-2 with a few mechanical improvements. Only works with the cassette in place.



**KIEV 16-U** Document "Katalog" 1969.

**KIEV 16-U (КНБ 16 У) c.1966 - c.1970**

(Y = "oo" in english) **MCA140**

Type: 16mm Format: 7.2x9.6mm 15m/50' or 30m/100' cassettes.

Reflex viewing body

Mechanical spring wind motor (4.5m per wind)

6 speeds: 8-16 (1/35s.)-24-32-48-64 fps + single frame.

3-lens oblique angle turret.

Prime lenses on turret:

VEGA-7 or HELIOS 2/20mm (35°), MIR-11 2/12.5mm (54°) and TAIR-41 2/50mm (15°).

ZENIT lenses can be mounted with an adapter ring.

Dimensions: 210x170x105mm

Weight: 2500 g

Variant:

**KIEV 16-U-2 (КНБ 16 У-2)**

**MCA150**

Identical to the KIEV 16U with a few mechanical improvements.

# Semi professional 16mm Movie Cameras from Arsenal

**KIEV 16-U-E 1969 - 1973**

**MCA160**

**КИЕВ 16У-Э**

Type: 16mm Format: 7.2x9.6mm 30m/100' cassette

TTL reflex body Removable grip

Electric motor (rechargeable batteries or external power source.)

3 speeds: 16 (1/35s.)-24-32fps + single frame. (setting on camera front)

frame counter with automatic reset.

3-lens oblique angle turret.

Prime lenses on turret: VEGA-7-1 or VEGA-73 or HELIOS

2/20mm (35°), MIR-11M 2/12.5mm (54°) and TAIR-41M

2/50mm (15°).

Dimensions: 270x140x105mm

Weight: 3000 g

Variant:

**KIEV 16-U-M**

**MCA165**

**КИЕВ 16У-М**

12-16-24-32-48fps.+ single frame.



**MCA160 - KIEV 16U-E**  
Document Catalogue

**KIEV 16E (КИЕВ-16Э)**

**MCA170**

**c.1969 - 1973**

Type: 16mm Format: 7.2x9.6mm 30m/100' cassette

Reflex body in polycarbonate plastic. Electric motor. Removable grip.

3 speeds: 16- 24- 32fps + single frame. Speed selector on camera front.

"C" international screwmount. Prime lens: VEGA-7E 2/20mm.



**MCA180 - KIEV 16-ALFA** Document J.C. Lombard

**KIEV 16 ALFA (КИЕВ 16 АЛЬФА )**

**MCA180**

**c.1970 - 1973**

Type: 16mm Format: 7.2x9.6mm 30m/100' cassette

Reflex body in polycarbonate plastic. Electric motor. Removable grip.

3 speeds: 16- 24- 32fps + single frame. Speed selector on camera front.

"C" international screwmount. Prime lens: VEGA-7E 2/20mm.

**KIEV 16 ALFA POLYAUTOMAT**

**MCA185**

**КИЕВ 16 АЛЬФА ПОЛУАВТОМАТ c.1973**

Improvement on the KIEV 16 ALFA.

Semi-automatic or manual exposure.

3 rechargeable batteries Rts653, with battery level visible in finder.

Can take Zenit 39mm or 42mm screwmount lenses with adapter rings.

Dimensions: 265x140x65mm

Weight: 1600 g



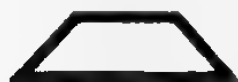
**MCA185 - KIEV 16-ALFA Polyautomat**  
Document KIEV



**ЭФТЭ**



**ФАГ**



**МИНИАТЮРНЫЕ, ВОЕННЫЕ  
И ДРУГИЕ ОСОБЫЕ КАМЕРЫ**



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## **Light Meters, Projectors, Enlargers and Various Accessories**

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# Light Meters, Projectors, Enlargers and Various Accessories...

One need only take a look at catalogues of full-service retailers of photographic material to notice the number of pages given to the light meters, projectors, enlargers, and various accessories that gravitate around camera equipment, and to understand the extent to which these are present in the photographic activity in general.

Nevertheless, while the peripheral bits are seldom collected, it is not unusual to see an iconomechanophile's defenses soften in the presence of an elegant light meter, a filter pouch, an underwater housing, a projector, or an enlarger.

Accessories bring new forms and colors to displays composed mainly of black and chrome cameras and lenses.

Collections of Soviet material are typical in this respect, and so we present herewith a short coverage of a few of the numerous accessories produced in Russia, and later in the Soviet Union, during the last century.

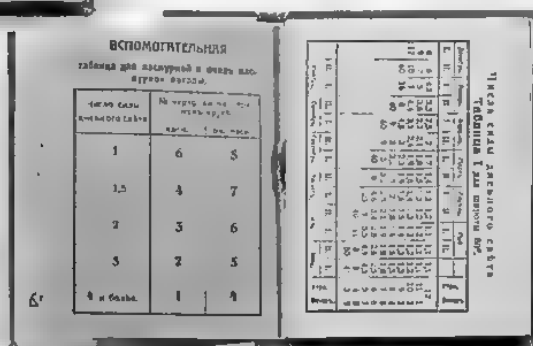
This is only the tip of the iceberg, items noted as the byproduct of our consultations and while looking at the documentation we amassed.

It is thus, perforce, an incomplete coverage of the topic; full coverage would be literally impossible.



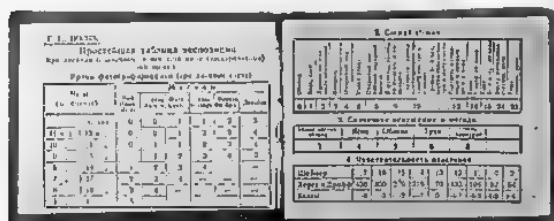
**Table of exposure times, by IOACHIM**  
In Petrograd (1915) and Moscow c.1915.

Booklet 6x8cm/2.4x3.2" in cardboard cover, with a table of exposure times and tips for picture taking.



**Table of exposure times, by G. N. POLIAK c.1935**

Booklet 6x8cm/2.4x3.2" in cardboard cover, with a table of exposure times and tips for picture taking.



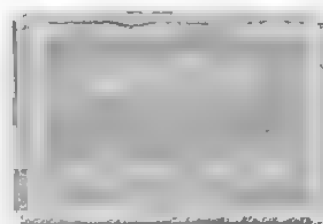
**Table of exposure times, c.1980**

Cardboard covered guide of exposure times..



**Light Meter c.1938**

Selenium light meter in bakelite similar to the one made by FED (see p.109)



**Optical light meter OPTEK**

"Foto Eksponometre"

Produced by ZOMZ

Pretty little optical lightmeter (2 - 16) for amateur, in bakelite.

Sold in a cardboard box, resembling a matchbox, found in various colors: grey, blue, green, pink ....

Price c. 1960-70: 1.50 ruble.

**Variants :**

Identical models made by other factories.

With Optek identification for exemple (see p.246).

# Light Meters, Projectors, Enlargers and Various Accessories...

If there is a single indispensable accessory for photographers and movie makers, it must be the light meter. It reassures the user, and confirms the settings used, more often than not the result of an informed "guesstimate."

**LENINGRAD c.1958 Leningrad-2 c.1962**

Produced by the VIBRATOR factory.

Selenium light meter: 11 - 700 GOST (12 - 750 ASA).

**MOSCOU c.1962**

Selenium light meter: 11 - 700 GOST (12 - 750 ASA).

Identical to the Leningrad-2.

**LENINGRAD-4 c.1970 - 1990**

Selenium light meter, calibrated in GOST.

export models in DIN and ASA.

**LENINGRAD-7 c.1983 - ...**

Selenium light meter, calibrated in GOST.

export models in DIN and ASA.

**LENINGRAD-6 c.1978 - ...**

CdS light meter with reflex viewer.

calibrated in GOST and DIN.

export model in DIN and ASA.

**LENINGRAD-8 c.1980 - ...**

CdS light meter in GOST and DIN.

**SVERDLOVSK-2 c.1980 - ...**

**SVERDLOVSK-4 c.1985 - ...**

CdS light meter in GOST and DIN.

**LENINGRAD-10 c.1985 - 1990**



**LENINGRAD-2**

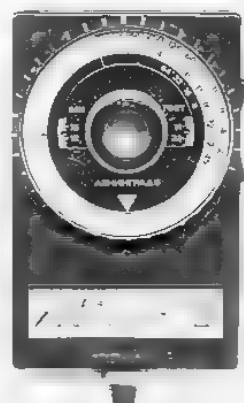
Doc. J.M. Kurkjan.

**LENINGRAD-6**

CdS reflex

**LENINGRAD-4**

Doc. M. Masson



**LENINGRAD-7**

Export Version

Doc. SLAVA



**SVERDLOVSK-4**

CdS - Doc. Sverdlovsk

(Club RCCC-E17).

# Light Meters, Projectors, Enlargers and Various Accessories...

**Sliding reproduction device c.1960 x**

Equipped with a rigid Industar-22 lens (p.248).

Several versions.

**FED near-focusing correction**

**device c.1938?**

Rare close-up kit and 1-diopter lens for the FED-1. To be used with the FED 3.5/50mm lens (see p. 108)

**Filters**

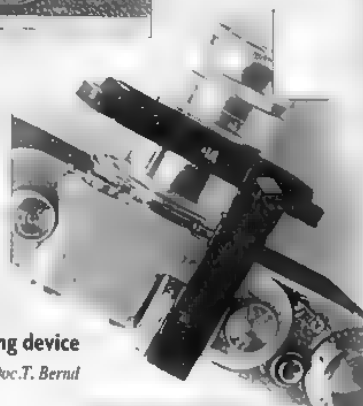
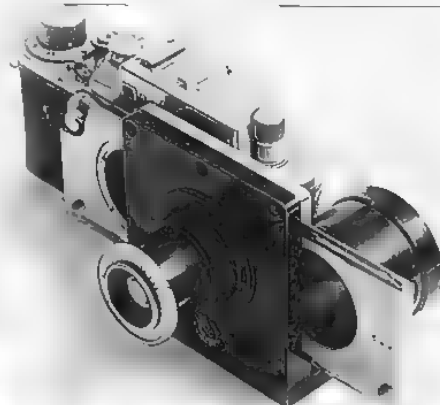
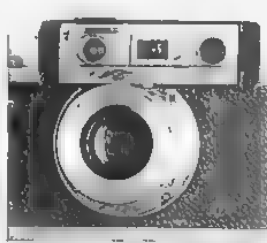
It is not unusual for the collector to find a lens like a Jupiter-8 with a red, green, or yellow filter attached.

This is an endless category, but the one could do worse than to keep a few of these filters in their elegant bakelite boxes, made by all the major factories: GOMZ, MMZ, KMZ, KOMZ.

**Sliding reproduction device**

**Industar-22 Kz15**

Doc. A. Berry



**Close-up viewing device**

FED. Doc.T. Bernif

**Polarizing filter**  
PF-42 for Kiev  
by BelOMO c.1957



# Light Meters, Projectors, Enlargers and Various Accessories...

**FGK-49** Doc. Catalogue



## **FGK-49 1950's Unknown manufacturer**

35mm filmstrip projector for 18x24mm images on 35mm film. 77mm "Periscop" lens

Dimensions: 230x240x115mm Weight 2.8kg.

## **SVET 1960's**

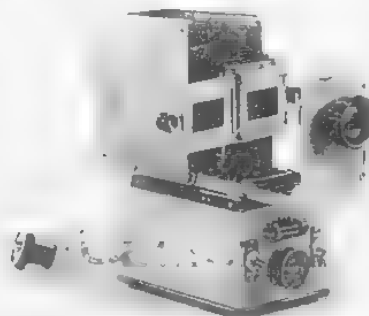
**Unknown manufacturer** - 35mm slide projector for standard 5x5cm/2x2" mounted slides, with back and forth manual changer. Bi-voltage: 110/220v. 2.8/80mm lens.

Dimensions:  
210x158x102mm

Weight 3.4kg.

### **Variants:**

- **SVET DM-3** c.1970
- **SVET DM-3T** c.1975 (12v.)
- **SVET DM-4** (modernized...)
- **SVET DM-4T** (12v.)



**LETI-60** Doc. Catalogue



## **LETI-60 c.1964**

**Produced by KOMZ**

Projecteur de vues 35mm

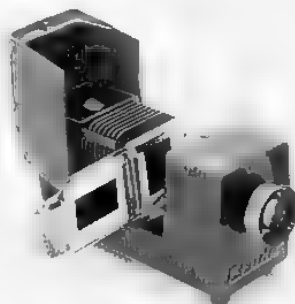
slide projector for standard 5x5cm/2x2" mounted slides.

2/90mm lens. Lamp: 500w, air cooled.

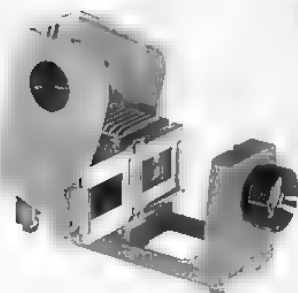
Dimensions: 300x140x290mm. Weight 8kg.

delivered with lighted pointer for conferences.

**ETUDE** Doc. Catalogue



**ETUDE-2S** Doc. Catalogue



## **ETUDE c.1967**

**Produced by FED** - 35mm projector for standard 5x5cm/2x2" mounted slides, with back and forth manual changer. T-3 2.8/80mm lens. Weight 800g

### **Variants:**

## **ETUDE-2 c.1972**

**Produced by FED** - Identical to the Etude but more powerful.

**ETUDE-2 c.1977** Identical to the Etude-2 but with redesigned chassis. (two additional protection plates on the top.)

## **ETUDE-2s c.1982**

**Produced by FED** - 35mm projector for standard 5x5cm/2x2" mounted slides, with back and forth manual changer. T-3 2.8/80mm lens. Dimensions: 147x105x75mm Weight 750g.

**FED-ETUDE c.1982**, identical to the Etude-2s but delivered with standard horizontal slide changer or vertical changer for 5x5cm/2x2" mounted slides. T-3 2.8/80mm lens. Dimensions: 147x105x75mm Weight 750g. (Club RCCC-E1).

**FED-STEREO c.1988** - Stereo projector for 5x5cm/2x2" mounted slides with fade-out/fade-in device. (see illustration p.113). Triplet 2.8/78mm lenses. (Club RCCC-E12).

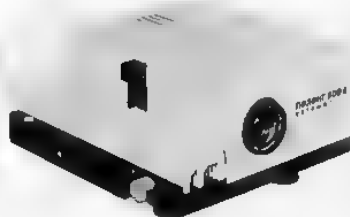
One can also find other projectors similar to the SVET and ETUDE. Less well known in the west, these have names like EKRAN and SPUTNIK. The same principle is also used, in a more modern form, by the PELENG projectors, the model 500D being for 18x24 filmstrips and the model 800 for both filmstrips and standard 5x5cm/2x2" mounted slides.

## **PELENG Projectors - Produced by DIAPROJECTOR / PELENG / BelOMO. (seep.229)**

Peleng projectors are well represented in Soviet catalogues from the 1980's. The BelOMO factory offered (around 1985) models with "international standard" trays: PELENG-500A, PELENG-500K, PELENG-500AF (autofocus), PELENG-700AD, PELENG-700AF, PELENG-700AD, PELENG-800AF (Kodak Carousel.) These projectors, with their more "contemporary" appearance, were preceded by earlier models such as the PROTON (c. 1968), KRUGOZOR (1971), SVITIAZ (c. 1976), ALFA35-50 (c. 1974) or ALFA35-50 Auto (c. 1978) that were, in turn, inspired by western projectors.

Closing this quick look at Soviet projectors, let's not forget the 6x6cm models made by ARSE-NAL in KIEV: the KIEV-66 Universal, and KIEV-66 Automatic or 66-IK.

**PELENG 500A** Doc. BelOMO.



# Light Meters, Projectors, Enlargers and Various Accessories...

*In the world of photography, the phase that takes place under the red light in the darkroom is just as important as what occurs in daylight.*

*In the USSR, maybe more than elsewhere, photographers apply special care to the printing and processing phase. Numerous enlargers are still offered in catalogues. Here are a few of them:*

**YUNOST c.1965** B&W - 10x14 - 24x36mm. Vega-11U or Industar-22U lens.

**SMENA-2 c.1965** B&W - 24x36mm. Vega-11U, Industar-22 or 50 U lens.

**ISKRA c.1965** B&W - 24x36mm. Vega-11U, Industar-22 or 50 U lens.

**RAKETA c.1965** B&W - 24x36mm. Industar- 50 U lens.

**URA-4 c.1965** B&W - 24x36mm. Industar-50 U lens.

**LENINGRAD-2 c.1965** B&W - 10x14 - 24x36mm. Industar-22 or 50 U lens.

**LENINGRAD-4 c.1975** B&W - 10x14 - 24x36mm. Industar-50 U lens.

**NEVA-4 c.1965** B&W - 6x9cm. Industar-23U or 50 U lens.

**NEVA-3M c.1965** B&W - 24x36mm au 6x9cm. Industar-23U or 50 U lens.

**URA-5 c.1970** B&W - 24x36mm au 6x9cm. Industar-23U or 50 U lens.

**URA-6 c.1975** B&W - 10x14 - 24x36mm. Industar-50 U lens.

**URA-510 c.1985** B&W - 13x17 - 24x36mm. Industar-96 U lens.

**URA-601 c.1980** B&W - 13x17 - 24x36mm. Industar-50 U lens. (Club RCCC-E27).

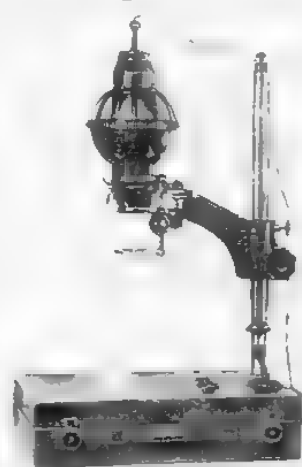
**URA-603 c.1985** B&W - 13x17 - 24x36mm. Industar-50 U lens.

**URA-725 c.1985** 13x17 - 24x36mm. Industar-96 U lens.

**DON-103 c.1985** Color - 13x17 - 24x36mm. 2.8/50mm VEGA-11U lens

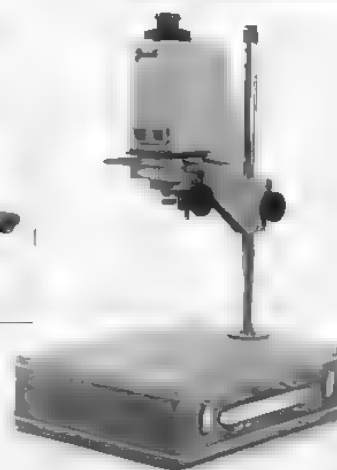
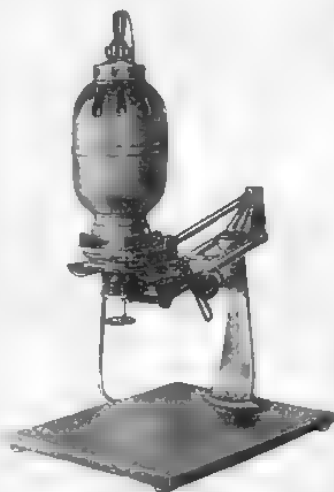
**DON-110 c.1988** B&W - 13x17 - 24x36. 2.8/50mm VEGA-11U lens

**A30B c.1988** B&W - 24x36 - 60x90. 2.8/50mm VEGA-11U, or 4/105mm VEGA-5U lens



URA-4 enlarger with carrying case  
LENINGRAD-2 .

URA-6 enlarger with carrying case



# Light Meters, Projectors, Enlargers and Various Accessories...

*Photographers' carrying cases often contain a small multitude of accessories. Without that favorite cable release, tripod, filter, bellows rig, or extension tubes, the photographer feels naked, as though without these devices he (or she) would not be able to deal with each and every situation. Ever prudent, he accepts the extra burden. So without further ado ...*

**SMENA c.1960** rangefinder c. 1960

Several variants (see p.51)

**BLIK c.1970** rangefinder c. 1970

Several variants.

**Table tripod c.1985 - ...**

**Produded by FED.** many versions, some by other makers, including some copies of the Leitz TOOUG. (Club RCCC-E15).

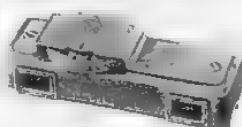
**Macro bellows PZF c.1985**

Numerous versions.

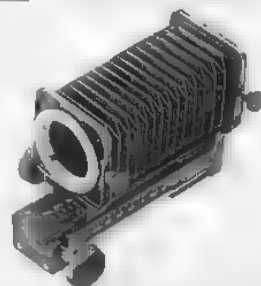
**Self timers** Numerous versions, by KMZ, by FED (see p.109). (Club RCCC-E25).

**Electronic flash c.1985**

Numerous versions. (Club RCCC-E18).



Rangefinder  
SMENA



Macro bellows PZF.

Table tripod . Doc. FED



**ЗФТЗ**

*"Арсенал"*



**ФАГ**



**МИНИАТЮРНЫЕ, ВОЕННЫЕ  
И ДРУГИЕ ОСОБЫЕ КАМЕРЫ**



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## **Notes, Index and Bibliography**

# Notes:

- 01: p.7-16-73. The city created by Peter the Great was known until 1914 as St. Petersburg, then until 1924 as Petrograd, becoming known as Leningrad at Lenin's death that year. On June 12, 1991, the city resumed its original name Saint PETERSBOURG.
- 02: p.16. A.A. SYROV : Probably the only Russian writer who stubbornly pursued his passion when writing about camera production in his country, both before and after the Revolution. His principal works are; *The First Russian Cameras* (Goskinoizdat, Moscow - 1951) and *Development of The Camera* (Iskusstvo, Moscow - 1954).  
The present work is dedicated to him.
- 03: p.16. GREKOV published in 1841 a work "The painter without paintbrush or colours" in which he reveals his formulas and tricks of the trade.
- 04: p.16. In 1843, Charles CHEVALIER obtained the gold medal of Paris for views of the Caucasus sent to him by S. L. LEVITSKY. In 1844, then retired, LEVITSKY came to France. CHEVALIER introduced him to DUMAS, the chemist and to DAGUERRE. In 1851, he obtained the gold medal at the International Exhibition of the Photography of Paris. Then, in 1863, in Fontainebleau near Paris, using collodion techniques, he exposed 34 shots in 4 days, a record for the time. S.L. LEVITSKY was one of the founders of "Notebooks of the Russian Technical Society" (RTO: Russkoye Technicheskoye Obchiestvo). After his retirement, at his professional studio in St. Petersburg, he introduced the first electric light into the photographic process. The innovation was confirmed at the session of the S.T.R. of November 4, 1883. Following the adaptation of the bellows on a sliding drawer camera, LEVITSKY also introduced painted backgrounds and retouching to Russia.
- 04b p.16. Early Photography in Eastern Europe: RUSSIA, by S. MOROSOV. History of Photography - An International quarterly - Octobre 1977.
- 05: p.16. "Privileges" were the patents of Imperial Russia.
- 06: p.5-18. In 1815, the Grand Duchy of Warsaw comprised the "realm of the congresses", apparently autonomous under Russian dominion. (The Tzar was at that time the king of Poland).  
1830: Polish uprising crushed by the Russians. 1832: political servitude of Poland.  
1863-64: Anti-Russian uprisings repressed. Poland remains the 'Russified territory of the Vistula' until the First World War.
- 07: p.18. See the TITBIT by Tylar- England c 1895. (*Price Guide* -McKeown-USA)
- 08: p.18. See the "NORMAL REFLEX" by Dr. Krügener c1891, the Houton reflex c 1895, the Anthony Reflex, The MARS by E. Wünsche - Dresden, 1895 and the Hesekei Reflex - Berlin 1895.
- 09: p.18. See the Détective 9x12 by J. Garcin. c 1892.. ( N°915 - ref: "*Les Appareils Photographiques Français*" - Maegh Editeur-France)
- 10: p.18. See the "Reporter Marron" 1886 (or 1889 ref: "*Cameras*" by Brian Coe - AB Nordbok Editor), and the double bellows camera. (N° 108 ref: "*Les Appareils Photographiques Français*"- Maegh Editeur-F).
- 11: p.19. N°2 Stereo Kodak camera (ref: McKeown p.177 + "*The First hundred years*" KODAK by Brian Coe. p.31- Hove Photo Books Editor-GB + "*A Century of Cameras*" by E.S. Lothrop, p.114 - Morgan & Morgan -New York- USA )
- 12: p.19. See the Chromographoscope by L. Ducos du Hauron. 1897.
- 12bis p.21. Correspondance from G.W. Beukering, following the first edition about the origins of the Rapid Aplanat. The Aplanat was calculated by H.A. Steinheil in 1866. The Rapid Aplanat was a development of the original, produced by E. Busch after 1890, leading to the dating of the camera shown on p.21.
- 13: p.26. Technique used on a large number of bakelite cameras after the war and at present on most "disposable" or single use cameras.
- 14: p.26. Esco by Seischab "*Von Daguerre bis Heute*" Abring N° 2045
- 15: p.28. See *Shutterbug* Ads - (September, 1988) .  
Also see illustration N° 494 in J. JANDA - "*Camera obscura. Photographic cameras 1840-1940*" - National Museum of Technology -Prague - 1982 -
- 16: p.27. See "*Von Daguerre bis Heute*" Abring- N° 1859 + "Guide Michel Auer" N°2471 + McKeown p.118 (11th Ed.).
- 16b: p.28. Read Alain Berry's article on the Uchenik, in *Cyclope* magazine N°52 (France).
- 17: p.32. Political power insists on the power of the image on the masses. The Superintendent of the Peoples'Police, A. Lunatcharski (also the man behind the "national photographic loan" - see the Fotokor, p.22) declared: "the camera is more indispensable to the individual than the watch, the pen, or the pocketknife".

- 18: p.7-p.32. The Cheka (Extraordinary Commission against Sabotage and Counter-revolution) was created on September 20, 1917 by Felix E. Dzerzhinski at the request of Lenin and the Central Committee of the Communist Party. The Cheka became in 1922 the G.P.U then O.G.P.U (Beria was its deputy director.) In July, 1934, the Special Services of the Political Police became the N.K.V.D (People's Commissariat for Internal Affairs) until 1941, when it was renamed the N.K.G.B until the end of 1946. Late 1946 was the M.G.B-M.V.D period. Through March, 1953, with the death of Stalin, came the K.G.B. In 1993, the K.G.B became the F.S.K: Federal Service of Counter-Intelligence.
- 19: p.33-p.40-p.41. Read about the "pre-Leica": - "A History of the 35mm still camera" - R. Hicks - Focal Press - 1984- UK  
- "A new look at the old 35 mm" - T.F. Naylor - PHSNE - USA  
- "Birth of the 35mm", by J-L Princelle in Cyclope magazine - France.
- 20: p.70-p.75-p.106. The Bièvres meeting of collectors of cameras and photographic images takes place every year on the first Sunday of June. The international fair is arguably unique in the world, because it begins Friday or Saturday, continues all night long and finished only on Sunday evening. Bièvres, a small village 15km south of Paris also has one of the richest and of most famous museums of photography in the world, with more than 3,000 cameras on display. J. Fages. was the founder.
- 21: p.99. "300 Leica Copies" P.H. Pont et J-L. Princelle - Fotosaga - 1990 - F
- 22: p.37-p.38-p.99-p.133-p.143 "Leica Copies" -H.L.P.R - Classic Collection Publications - 1994 - UK
- 23: p.38. "Historische Kameras" - Peter Langner & Hans Kleffe - VEB Fotokinoverlag Leipzig - 1989 (DDR)
- 24: p.41. "Von Daguerre bis Heute" Abring N°1640.
- 25: p.41-p.88. Oscar Fricke is the author of numerous excellent studies on the production of the Soviet cameras, notably the history of the FED commune : "The Dzerzhinsky Commune: Birth of the Soviet 35mm Camera Industry". History of Photography, Volume 3, Number 2 April 1979 - USA.
- 26: p.44. Dans 'Put' Fotoapparata" - "Development of the Camera" de A. A. SYROV p.109, a sketch shows the LILIPUT with the name on the facade, copying the EXTRA of Kaftanski. This presentation is repeated on the cover of the 1937 directions for use and on the photograph accompanying the article of I. Uvarov, general manager of GOMZ, that appeared in Sovetskoye Foto N°11 of 1937.  
"Sovetskoye Foto" was the most popular photographic periodical in Soviet Union with a circulation exceeding 200,000 copies. The first issues date to 1926, the last ones to 1992, when the name was changed to "FOTOGrafiya".
- 27: p.45. "Plan Cameras". This is the "tongue in cheek" designation given by the engineers of KMZ to describe certain cameras such as the IONKOR. Production could be set up quickly and the cameras were easy to make, thus letting the factories fill a delay in the production plan. These cameras were generally intended for the youth market.
- 28: p.50-p.103. "Cameras of the People's Republic of China" - Douglas St Denny.- Jessop Publishing - 1989 - UK
- 29: p.75. See Dieter Scheiba's article in "Photo-Antiquaria" N°3/1994 - Revue du Club Daguerre- Deutschland
- 30: p.75. JANUS (or DIANUS) Greco-Roman divinity. Guardian of the gates of Rome, JANUS possessed two faces, one for arrivals, one for departure. One finds the name in January, dedicated to Janus.
- 30b: p.58 In 1959/1960 Konishiroku introduced the Konica F, first SLR equipped with a metal focal shutter with vertical blades.
- 31: p.59. The serial number in the accessory shoe of Leningrad, generally indicates the year of production; a number beginning with 00, indicates a preseries. Another production number is located inside the camera body.
- 32: p.59. "A History of the 35mm still camera". R. Hicks. p. 39 - Focal Press - UK
- 33: p.76. E.A. IOFIS, author or co-author of a large number of popular works, a photographic encyclopedia, and a treatise on the material and the techniques of the '50' to the '80's.
- 34: p.45-p.58-p.70: Before the war, I. Shapiro had already demonstrated with the SMENA, a redesigned copy of the KODAK BANTAM, proof of his talent as a designer, which was confirmed with the LENINGRAD. He was, at the end of the siege that cost Leningrad so dear, one of the driving forces of the restart of the GOMZ company.
- 35: p.70. The KOMSOMOLET exists in a large number of variations. One of them, discovered by the collector J. Daniel, has a cavity not seen on classic models situated under the film advance knob, allowing us to envisage from the bakelite model, an evolution with coupled advance and cocking, or simply the automatic advance that one finds later on NEVA.
- 36: p.70. AMATÖR: ref. Auktionshaus Cornwall Catalog N°39+XVI -April 1991 - Lot N°550 Tafel 38.
- 37: p.71. McKEOWN p.309 (Ed. 2001)



- 38: p.73. Ref: "Science et vie" 1961 (F), and catalog "Cinéphotoguide" 1963-64
- 39: p.74. In this configuration, the prototype Vympel recalls the GLORIA 6x6 by BRAUN -1954. (ref: "Deutsche Kameras - 1945-1986" W. Kerkmann N°257.)
- 40: p.74. Ref: "Fotographie" - October 1958 - DDR.
- 41: p.82. Foto Troud = photographic work . ARFO: Artel- Fotografie , workshop.
- 42: p.82. ODSK - Obshestvo Drouzei Sovetskoy Kinematographii. Association of Friends of Soviet Cinematography.
- 43: p.82. May be a copy of the FOTH-FLEX by FOTH (c1934)
- 44: p.85. D.Z. Bunimovitch: Sovetskoye Foto journalist specializing in camera production. Reputedly the creator of the YURA and FEDETTA, he is also the editor of the first guide "KAMERA FED" (p.58) and the book "Soviet Cameras" c1950. (voir p.II).
- 45: p.88. Féliks Edmundovitch Dzerjinski, born in Vilnius, Lithuania (1877-1926) Founder of the Cheka, then the G.P.U, becoming in 1924, President of the Supreme Economic Council.
- 46: p.88. Anton Semyonovich Makarenko, born in the Ukraine in 1888, becomes the schoolteacher at Kryukov in 1905. He directs the Commune in Kharkov from June 1927, after the extraordinary FED epic, he is moved in July; 35 to KIEV. He retires to Moscow in 1937, where he disappears in April 1939
- 47: p.88. Gorki: Former name of Nizhni-Novgorod, at the confluence of the Volga and the Oxa rivers. Birthplace of A. Pechkov, better known as the famous writer Maxime Gorki (1868-1936).
- 48: p.88. "The Communards": Participant in the Paris commune during the revolution of 1871. This French historic event is studied in the program of secondary schools in URSS.
- 49: p.88. FED was under the control of the Leningrad Trust (TOMP). (p. 20)
- 50: p.88. See illustration "Prestige de la Photographie" N°4, p.122 - E.P.A - F (Bundes Archives-Köblenz- D)
- 51: p.93. However, while "300 Leica Copies" was being edited, a French collector having seen a FED - Leica 1 at a famous London fair, at the asking price of £200.
- 52: p.101. Auktionshaus Cornwall Catalog N°44, lot N°1113 tafel 42: FED-SPORT N°27 - Christie's Auction MCA 6724 lot N°204, FED-SPORT N°0049 with FED 2/50mm with FZD engraving (ФЗД).
- 53: p.108. Auktionshaus Cornwall Catalog N°38 p. 74: Telyt lens...
- 54: p.100. Friedrich von Paulus (1890-1957) Commander of the German VIth army in Russia, he surrenders January 31, 1943 in Stalingrad. Prisoner in the USSR, he was freed in 1953.
- 55: p.99. "Cameras uit Russland" - Herman Van De Velde - Provinciaal Museum voor Fotografie Antwerpen - 1988 - B
- 56: p.105. TAXAL, FED-4 showing what is probably a distributor's brand name - "Cameras uit Russland", N° 14 p13.
- 57: p.111. The FED Micron- FED-35, ELECTRA 112 and SILUET seem to be inspired by the COSINA-35 (c1972) ref: Catalogue 72/73 R.C.O Antwerp- Belgique.
- 58: p.150. Rectaflex. "La Reflex Magica" P.H.Pont (Ed. Fotosaga- 1987)  
Rectaflex. Marco Antonetto - Nassa Watch Gallery - 2002
- 59: p.153. The lens for the ZENIT-4-5-6 can be adapted on the Voigtländer Bessamatic, because the bayonet is similar, but infinity focus is impossible as the flange depths are different. The Rubin will not fit at all, due to its projecting rear element.
- 60: p.156. Flange depths of the bodies: ZENIT-E :  $\varnothing 39 = 45.2 \pm 0.02$  mm  
Flange depths of the bodies: ZENIT-E :  $\varnothing 42 = 45.5 \pm 0.02$  mm
- 60bis p.167. In the 80's, a range of "HELIOS" lenses with preset diaphragm, was offered to amateur photographers in some brochures offering Soviet material. These were from Japan.
- 61: p.156. see Zenit commemorative, Zenit "no-name" "for display", and Prinzflex in "Cameras uit Russland"
- 61bis p.156. The "MEPROZENIT" was imported from 1972 until 1975 by MEIBOU-SANGYOU CoLtd (Tokyo). ref: correspondence with Akira Kasuya + A History of Japanese Cameras -Part.32 -Avril 1979 (JHCSC).
- 61ter p.157. Global Cameras Ltd. Bulletin of the RCCC : M35 - sept.2000.
- 62: p.163. In the instruction book delivered with the ZENIT-AUTOMAT it is specified that the electronic part of the camera is made by the French firm, EFCO, based on microcomputers with MC 64NC704P4 MOTOROLA semiconductors.
- 63: p.171. - Les objectifs catadioptriques - Andreani-Photo Revue Oct.1950.  
- Les objectifs catadioptriques - L.P. Clerc- La technique photographique P. Montel 1957.
- 64: p.172. 1965 is also the year of Nikita Khrushchev's ouster..
- 65: p.173. The rifle outfit equipped with the TAïR was offered in certain European countries without the ZENIT body, to be used with any 42mm screwmount camera.
- 66: p.34-184. ref: "Deutsche Kameras"- W.Kerkmann - Lindemann : p.322 .
- 67: "Les Chiffres Clés - Benchmarks" 1994 - FOTOSAGA -F p.49 to 51.
- 68: p.196. "PHOTO DEAL 2/93, FOTO KURIER 9/93".

- 69: p.206. Testimonies of "old-timers" at Arsenal and KMZ. See also p.83.
- 70: p.207. "Contax to KHEB - A Report on the Mutation" - Office HELIAR- August 2000 ( ISBN4-901241-02-8 C1072 )
- 71: p.207 Instruction for use, in cyrillic, delivered with the KIEV-II c.1952, still shows a KIEV "48", with ZK 2/50mm lens. (# 003466)
- 72: p.208. ISGOTOVLENO: means Manufactured; SDELANO: means Made.
- 73: p.222. Vitoflex is also the name of a 35mm reflex camera by Voigtlander, removed from the market under pressure from Leitz, wishing to protect their Visoflex trademark.
- 74: p.225 Rare Camera 1/94 p.8 : Prototype FK6. + Fotomagazine 5/70 p. 93 (RDA)
- 75: p.221. FOTOFICHE N°36 - "Les KIEV 16mm" - FotoSaga - 1995
- 76: p.221. - KIEV VEGA: horizontal field of viewer = 20° - Of lens = 34°.  
- KIEV-30: horizontal field of viewer = 20° - Of lens = 40°.
- 77: p.228. Vavilov: Physicist and academician, purged by Stalin.
- 78: p.32. Documents supplied by Irina Frolova.
- 80: p.3. Boris Goudounov: (1551-1605) Tsar in 1598. Subject of a tragedy by A. Puskin in 1831. Mussorgski 's opera is based on the novel (1869).
- 81: p.3. On February 1st, 1918, (formerly February 14th) the Soviet government adopted the Gregorian calendar.
- 82: p.5. The "Tsar's finger" ...Legend has it that the right-of-way of the railroad from St Petersburg to Moscow was defined on the map by the Tsar himself. Tracing a line between the two capitals with a ruler, the pen followed the profile of the imperial index finger. The railroad was constructed as such, with a geographically unexplained curve on it. This recalls a similar event concerning Stalin. Coming to check the plans of a building which he particularly liked, the "little father of the people" is said to have exclaimed, "it is perfect!". The facade of the building which was to be symmetrical, had been only half drawn on the plan; it was constructed exactly according to the plan. Thus one can admire in Moscow a building which would have been much more elegant if Stalin's visit had taken place after a few more hours had been spent at the drawing board.
- 83: p.40. "KINE EXAKTA ODER SPORT" R. Hummel, Lindemanns Verlag 1997.
- 84: p.104. See catalog Leica Shop Wien 1999 p.42
- 85: p.47. Concerning Ionissiani's absence, let us be not gullible. The dates give us the whole truth about his "memorization" of the Leitz secrets. By 1936, 25,000 FED cameras had already been made, and the manufacture of the Voomp abandoned. So just which manufacturing, assembly or finishing secrets are supposed to have been brought back in the memory cells of Andronik C. Ionissiani ?
- 87: p.1-252. "Iconomechanophiles": In 1990, camera historian P.H. Pont wondered, during a conversation among friends, about the non-existence of a term designating camera collectors. He proposed several names to the group. "Iconomechanophile" among others. This one was chosen and it has been used in France ever since.
- 88: p.40 Exakta Cameras 1933-1978 Clément Aguila and Michel Rouah "Hove Foto Books" - 1987.
- 89: p.III-22-186. Soviet Glimpses - Part of the collection of images by Dimitriev, Grinberg, Svishev-Paola, Ulitine, Klebnikov and Shokin, collected by Michail Ivanovitch Golossovski was exposed under the title "Russian Pictorialists" at the same time as works selected by their contemporaries Alexander Sliussariiev, Edyge Niazov, Galina Nicolaievna Loukianova at "La Fontaine Obscure" gallery, 31 rue Venel F-13100 Aix en Provence in November, 1990.
- 90: p.2 The Teutonic Knights, in the film *Alexandre Nevski* by Sergei Eisenstein.
- 91: p.71. "Baby joie" - "SEM et les SEMFLEX" P.H. Pont - FOTOSAGA 1995.
- 92: p.101. FED. Special series: "AURORA 1917-1997 Made for A. Kasuya by A. Kamynin Cameras Works N° 97001". This camera is half Zorki Ic, half "FED Siberia" with a FED lens... (perhaps a single copy).  
p.103. FED-2 type-b. Special series: 1998 with engraving "AURORA-2" on the top plate, and "Made for A. Kasuya N°001" on the back. (perhaps several copies). Akira Kasuya is a well-known Japanese collector of FED and Zorki. Alexandre Kamynin is known by numerous collectors under the name of the "Flying Dealer".
- 93: p.67. Lomographic Society Int. : Stifgasse 15-1718 - 1070 Vienna - Austria  
Email: lomo@lomo.com + www.lomo.com  
Lomographic Embassy Paris : Taos Film-7 Bd Saint Martin 75003 Paris - France  
Email: taos@club-internet.fr + http://www.multimania.com/lomoparis
- 94: p.67. "The Case of The Counterfeit CANON" article by Bob Shell in SHUTTERBUG SEPTEMBER 1994.
- 95: p.42. THE SPORT CAMERA - by Stephan Sztromajer. PHOTOGRAPHY WORLD. (PCGGB) - UK.  
+ SPORT, Die Camera "Eerste" by Gerard Somers. CAMERA MAGAZINE n°4 - 1995 - NL.

- 96: p.113. "About the FED 670..." Letter by A.I. Bodnia, chief engineer of the FED company, in answer to questions put by David Tomlinson, 8/98. (F20). RUSSIAN CAMERA COLLECTOR CLUB, 128 Henwood Green Road, Pembury, Tunbridge Wells, Kent TN2 4LN. UK.
- 97: p.45 "Bakelite, a very unnoticed material", by Gerard W. van Beukering - Bulletin du RCCC : M32
- 98: p.172. Ref.HPR's article,in Historical Camera bulletin.
- 99: p.220. Comparative article by Jason Schneider on Nikon and Kiev lenses in Nikon mount. Popular Photography March 1994.
- 100: p.222. "Catalog" - Umstätter -D
- 101: p.222. Catalog Leica Shop Wien 1997
- 101bis p.193. Seen at Leica Shop Wien
- 102: p.191-195-196-197-200. "The Ultimate SPY book"; H.Keith Melton in collaboration with W. Colby (CIA) et O. Kalugin (KGB) - DK editor - 1996.
- 103: p.172. Jason Schneider on Camera Collecting. Chapter 23 p. 66-67.
- 104: p.210. Jason Schneider on Camera Collecting. Chapter 26 p. 72.
- 105: FED - The Unbearable Leica-ness of being (or not being) Don Smith- PHOTOGRAPHY WORLD -UK - Spring 1999.
- 106: p.190. - "About conversations and Valia's translation". Broadcast reports are eloquent, and proper translation of a statement is no small matter. Without Valia's talented and rapid translations, few of the questions asked would have been answered appropriately. May he consider himself, once again, thanked for his contribution.
- 107: p.196. Auktionshaus Cornwall Catalog N°56 4/1999
- 108: p.197. Matchbox cameras - McKeown. Ed.2001 p.354.
- 109: p.196. Photo Deal 2/93 issue - article by H.E. Heckmann.
- 110: p.43. A working stereophotographer pointed out to me, after the 1st edition, an inconsistency between "size/distance" specifications for the separation between objective axes. Pairs of 24x30mm images require a base of 62 to 63mm, while the base for 24x36mm pairs must be 72 to 73mm.
- 112: p.94. FED# 1148. See Auktionshaus Cornwall Catalog N°50, 4-1996 - lot 286.
- 113: p.99. TSVVS "NoName" See Auktionshaus Cornwall Catalog N°36, 6-1990 - lots 488 et 1526.
- 114: p.196. UFA. Auktionshaus Cornwall Catalog N°50, 4-1996 - lot 1925.
- 115: p.194. F21. and accessories. Ref: Cameras and Viewing Devices - Swann Galleries - New York. 12-1999.
- 116: p.194. F21. See Auktionshaus Cornwall Catalog N°34, 11-1989 - lot 472.
- 117: p.195. F21. See Auktionshaus Cornwall Catalog N°42, 4-1992 - lot 816.
- 118: p.196. S-252. See Auktionshaus Cornwall Catalog N°47, 9-1994. lots 941 and 944.
- 119: p.199. Zorki reflex. See Auktionshaus Cornwall Catalog N°43, 9-1992 - lot 2939.
- 120: p.200. Camera. See Auktionshaus Cornwall Catalog N°40, 9-1991. lot 1532.
- 121: p.252-256. The amateur movie camera "QUARZ-S1" completely redesigned, is presented by specialized press as: *"having been designed and developed by professionals, offering possibilities that advanced amateur movie-makers will appreciate despite the limitations imposed by the Super-8 cassette itself..."*

In 1965 Kodak introduced the super 8mm format with the new Super-8 cassette. As revolutionary as it might have seemed at the time, this plastic cassette, was designed around co-axial feed and take-up spools, (instead of the previous system using separate stacked spools) to enhance its compactness. This configuration, combined with an ineffective plastic pressure-plate, often caused film flutter in the Super-8 cartridge pumping, a situation worsened by the widespread appearance of fixed-focus lenses on many cameras.

The Russian text quoted above appears much less surprising in this light. Nevertheless, the Pathe Company introduced, sometime around 1965, a "Double-8" cassette, featuring 30m (100') of double perforated 16mm (using the Super-8 perforation spacing), which gave 60m (200') of exposed film after development. It had the advantage (over Kodak's Super-8 cassette) of having the film run in a straight channel with a true pressure plate. Basing on 9,5mm and 16mm models (see *Caméras Françaises*, P. H. Pont, Fotosaga -F), several cameras in this format appear: Pathé-Webó DS8TTL; the Duolight and the Report.

In Japan, Canon introduces a DS8 version of its 16mm Scoopic camera line.

The Soviets also adopted the DS8, but in 7.5 m (25') spools, for use in existing cameras, e.g. the Aurora Super.

Fuji, having launched its "Single-8" format, copied Pathé's type H film pack, with the same advantages of a straight film channel and a true pressure plate. This otherwise good solution was countered by an unfortunate choice of films on polyester base, making them very difficult to edit and splice.

So poor quality, due to the design of the Super-8 cartridge and fixed focus lenses on the cameras, ended up disgusting the real fans of amateur cinematography. There is nothing deader than the Super-8 format.

- 122: p.254 "Catalogue des Caméras Françaises". P.H. Pont, Edition Fotosaga - 1993.
- 123: p.253 In the Soviet Union, selling prices are printed (at the factory) on most of manufactured goods (cameras, but also books and convenience goods). You will find some of these prices reported, in particular accompanying amateur movie cameras. For the record, at the end of the end of the 80's, a middle manager, an engineer or a skilled worker, received a salary of about 300 rubles.
- 124: p.225 Ref: Bob Shell's article, Shutterbug Ads, 1/97.
- 125: p.171 "Current Russian Catadioptric lenses", by Kevin Kalsbeek, Bulletin of RCCC (O20 to O27).
- 126: p.171 Comparison MTO/ZM-6A/Nikkor, Sovetskoye Foto.
- 127: p.171 "The Discovery of Catadioptric Lenses by D.D. Maksutov". G.W. Van Beukering. 1998 - Bulletin N° 86 of the Club Niepce-Lumière.
- 127bis p.171 "Non-Leitz LEICA Thread-Mount Lenses" p.112 note 76 - M.J. Small - Wittig Book
- 128: p.174 "Fotosniper FS-122 and 122Kr" - Bulletin of the RCCC (E21 à E24).
- 129: p.243 "The VOSTOK" - Bulletin of the RCCC (C96).
- 130: p.236 "L'ELIKON-35S" by G. W. van Beukering. Bulletin Niepce-Lumière N°96-F
- 131: p.206 For philatelist-iconomechanophiles: A series of 6 postage stamps showing the KIEV-4A, KIEV-5, KIEV-10, SALIUT, TAÏR-33 and MIR-3 were issued c1970.
- 132: p.196. See Auktionenhaus Cornwall Catalog N°58 4/2000.
- 133: p.203. See Auktionenhaus Cornwall Catalog N°58 4/2000 - lots. 2328-2329-2332 etc.
- 134: p.105 "FED 6 TTL" - Bulletin of the RCCC (L43).
- 135: p.163 "ZENIT AM-ZENIT AM-2" - by P. M. Kazimierzczak - FOTO n°6-1994 - Warszawa -Poland.
- 136: "Die PENTASIX-636" ( a KIEV-88 with K6 bayonet taking Schneider and Carl Zeiss Jena lenses, proposed by WIESE FOTOTECHNIK - D-22525 Hamburg.
- 137: p.223 Kiev-60 and 88 lenses, FOTO-ARSENAL list, D 90402-Nürnberg.
- 138: p.233 Illustrated in Sovetskoye Foto, 11/67 and Photo Revue, 5/68 (with the FED Micron and the KMZ ZENIT-D)
- 139: p.163 Another, different ZENIT-20 is shown by P.S. VOROBIEÏ in *POMOCHTCH FOTO LUBITELIU*, p.35 .
- 140: p.194. F27. See Auktionenhaus Cornwall Catalog N°58, 4-2000 - lot 2331.  
+ AuctionTeamKöln Brecker Catalog 23/9/2000 - lot 523.
- 141: p.196. S252. See Auktionenhaus Cornwall Catalog N°58, 4/2000- lot 2332.
- 142: p.249 "Non-Leitz LEICA Thread-Mount Lenses" p.119 note 144 - M.J. Small - Wittig Book
- 143: p.246 "Non-Leitz LEICA Thread-Mount Lenses" p.118 note 135 - M.J. Small - Wittig Book
- 144: p.144+249 "Non-Leitz LEICA Thread-Mount Lenses" p.119 note 140+142 - M.J. Small - Wittig Book
- 145: p.185 Read Roger W. Hicks's article in Shutterbug Ads.
- 146: p.134 "ZORKI-4K" by P. M. Kazimierzczak - FOTO n°4-1994 - Warszawa -Poland.
- 147: p.239 "ZENITY Z WILEJKI" by P. M. Kazimierzczak - FOTO n°7-1994 - Warszawa -Poland. A426
- 148: p.71 LUBITEL L455. In 1994, Jacques Daniel had shown me a KOMSOMOLETS/LUBITEL of which the body had certain cavities leading us to suspect that the makers were working on a coupled advance/cocking version. Fate intervened and it was his friend Alain Berry who discovered this Lubitel 166 (with Cyrillic markings) at Bièvres. The camera is completely identical to Lubitel L450, and gives concrete expression to our observations and to our hopes. (Read Alain Berry's article in Cyclope N°55-56).
- 149: p.110 "The FED ATLAS" - Bulletin of the RCCC (C116).
- 150: p.200 "The S-64" - Bulletin of the RCCC (C118).
- 151: p.195 F21 with case, Christie's Catalog - 8/1998 - lot N°229.
- 152: p.196 S-252 type-b, Christie's Catalog - 7/1997 - lot N°240.
- 153: p.196 S-252 type-c, Christie's Catalog - 8/1998 - lot N°229.
- 154: p.37 Christie's Catalog - 3/1994.
- 155: p.200. AuctionTeamKöln Brecker Catalog 23/9/2000 - lot 528
- 156: p.200. AuctionTeamKöln Brecker Catalog 23/9/2000 - lot 527 - 531
- 157: p.199. AuctionTeamKöln Brecker Catalog 23/9/2000 - lot 520 . This camera is different from the four other models shown p.199
- 158: p.198. AuctionTeamKöln Brecker Catalog 23/9/2000 - lot 526
- 159: p.220. AuctionTeamKöln Brecker Catalog 23/9/2000 - lot 519
- 160: p.200. AuctionTeamKöln Brecker Catalog 23/9/2000 - lot 522 . Numerous 8 and 16mm cameras must have been reworked for the investigation, surveillance and other similar activities.  
They are at the present still rare on the Western market.

# Roman and cyrillic alphabet

Capitales letters	Smalls letters	Roman letters
<b>А</b>	<b>а</b>	A a
<b>Б</b>	<b>б</b>	B b
<b>В</b>	<b>в</b>	V v
<b>Г</b>	<b>г</b>	G g
<b>Д</b>	<b>д</b>	D d
<b>Е</b>	<b>е</b>	ié
<b>Ж</b>	<b>ж</b>	J j
<b>З</b>	<b>з</b>	Z z
<b>И</b>	<b>и</b>	I i
<b>Й</b>	<b>й</b>	ï
<b>К</b>	<b>к</b>	K k
<b>Л</b>	<b>л</b>	L l
<b>М</b>	<b>м</b>	M m
<b>Н</b>	<b>н</b>	N n
<b>О</b>	<b>о</b>	O o
<b>П</b>	<b>п</b>	P p

Capitales letters	Smalls letters	Roman letters
<b>Р</b>	<b>р</b>	R r
<b>С</b>	<b>с</b>	S s
<b>Т</b>	<b>т</b>	T t
<b>У</b>	<b>у</b>	ou
<b>Ф</b>	<b>ф</b>	F f
<b>Х</b>	<b>х</b>	kh
<b>Ц</b>	<b>ц</b>	ts
<b>Ч</b>	<b>ч</b>	tch
<b>Ш</b>	<b>ш</b>	ch
<b>Щ</b>	<b>щ</b>	chtch
<b>Ъ</b>	<b>ъ</b>	hard sign*
<b>Ы</b>	<b>ы</b>	hard "i"
<b>Ь</b>	<b>ь</b>	soft sign**
<b>Э</b>	<b>э</b>	è
<b>Ю</b>	<b>ю</b>	iou
<b>Я</b>	<b>я</b>	ia

\* : hardening of consonant sign

\*\* : palatalization of consonant sign

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- 1880 - 1889 > "THE PHOTOGRAPHER", with the same name: Bulletin of the Vth division of the RTO. (Russian Technical Organization) - see note 04 p. 280).
- 1887-1897 / 1904-1910 > "LE MERCURE PHOTOGRAPHIC" (The Photographic Mercury)
- 1890 > "THE AMATEUR PHOTOGRAPHER" was published in St. Petersburg, reaching its apogee around 1906 - 1909, under the guidance of S.I. Prokoudine-Gorsky.
- 1908 - 1918 > In Moscow, "THE MERCURY OF PHOTO".

## After the Revolution:

- 1926 - 1929 > The photographers' Union (dissolved in 1929) published "THE PHOTOGRAPHER" ...
- c1930 > Articles in "PROLETARSKOYE FOTO".
- 1926-1946 / 1952-1991 > SOVETSKOYE FOTO (Soviet photo)  
Which became after early 1992 "FOTOgraphia".
- 1993- ... > Photo Magazine - Moscow - e-mail: photomag@cityline.ru
- .....

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- Catalogs from Rare Camera Company & Leica-Shop - London - Wien
- Catalog from SecondHand Camera Auktion' 97 - U. KONOPATZKY - München
- Catalog from Auktion LP FOTOS AB - Stockholm

## Russian and Soviet camera collector clubs:

- RCCC: RUSSIAN CAMERA COLLECTOR CLUB - DAVID TOMLINSON - 128 Henwood Green Road, Pembury, Tunbridge Wells, Kent TN2 4LN. United Kingdom.
- CCCP: CLASSIC CAMERAS COLLECTORS PHOTOCIRCLE - ROBERTO ANTONINI, STRADA RESPOGLIO 8 - I-01100 VITERBO Italy - Tel/Fax: +39 (0761) 306-655



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